

# Backwoods



# Home magazine

*practical ideas for self-reliant living*

May/June 2000

No. 63

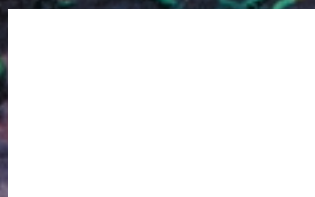
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**Backwoods Home Magazine** is written for people who have a desire to pursue personal independence, self sufficiency, and their dreams. It offers “how to” articles on owner-built housing, independent energy, gardening, health, self-employment, country living, and other topics related to an independent and self-reliant lifestyle.

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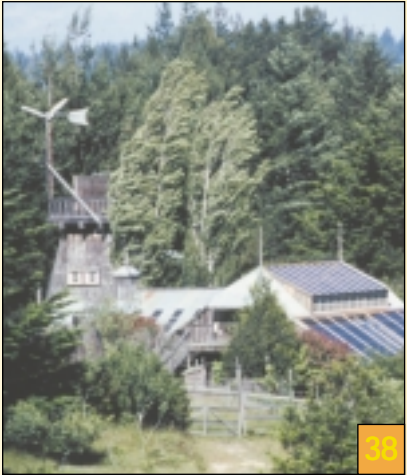
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ABOUT THE COVER

The cover is a John Dean painting of the new roof Stephen Heckerorh has put on his barn. The roof includes dormers, PV modules, solar water-heating panels, and skylights that have turned the once leaky barn roof into a power generator for Heckerorh’s California home-stead. Beneath the dormers is a spacious and well-lit loft apartment that runs the entire length of the barn.



Energy Works

38 Solar building design By Stephen Heckerorh

Incorporating the sun’s energy into building design is practical, simple, and affordable. Heckerorh provides four projects he personally designed that illustrate solar design strategies, introduce a new building-integrated photovoltaic roofing material, and show how integrating energy systems lowers overall cost.

45 Solar water pumping basics By Windy Dankoff

Solar pumps require no fuel. They are quiet, pollution-free, and require very little maintenance. Dankoff explains how they work, the hardware involved, their applications, and the economics of using free sunlight to pump your water.

Self-sufficiency

14 Build this sturdy large-capacity food dehydrator By Charles Sanders

Dehydrating is one of the oldest methods of preserving foods known to mankind. Charles Sanders explains how he built his family’s large-capacity food dehydrator for next to nothing.

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Guns

8 Armed and female By Massad Ayoob

Massad Ayoob is a policeman who is serious about arming women so they can protect themselves. In this issue he discusses gun selection, shooting techniques, and training methods as they apply to women. He also provides a suggested reading list for those women who would arm themselves.

Country Living

28 Finding the best dog for the country life By Anita Evangelista

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# Publisher's Note

## *"End of the World" specials*

Remember the November/December 1999 issue of this magazine when, in my page 7 *Commentary*, I ridiculed Y2K doomsayers for their "end of civilization" predictions, and I made my own set of 10 predictions for the year 2000? Has anyone gone back to see if my 10 predictions have come true?

If not, you should. Every one of them has come true, including the one that read: "Most doomsayers will find a new horse to ride, such as the planets lining up in one quadrant of the sky, or the impending visit by a close-encounter asteroid in 2028." Now, I'm not one to brag (that's why I waited four months to take this bow), but I sure wish all those guys who made the wrong predictions, such as Gary North, Michael Hyatt, Jim Lord, and Don McAlvany, would admit their predictions were wrong.

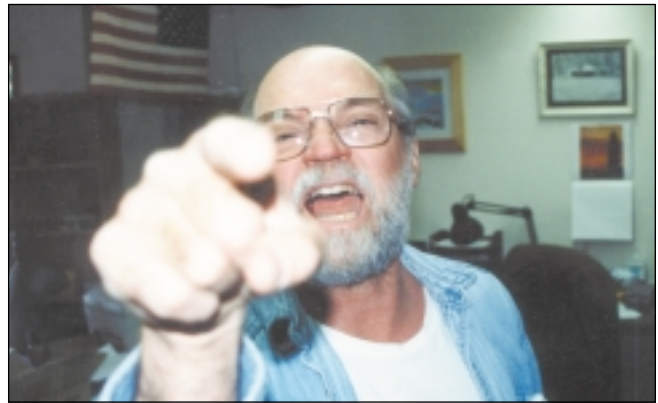
And I wish someone would write me a letter and congratulate me for batting 10 for 10. Could Babe Ruth have done any better? Could Larry Bird have called 10 shots, then made them one after another, in a game all the "wrong" doomsayers were saying was a matter of life and death?

But no letters have come with congratulations, not even from those readers who, at the time of my predictions, castigated me for "shirking my journalistic responsibility" by not warning *BHM*'s readership of the impending doom. In fact, the hundreds of thousands of people who used to read the dire predictions of North, Hyatt, Lord, and McAlvany have not flocked to my side as their new guru. Bummer!

The other day I did a little research to see what these discredited doom and gloomers have been doing since January 1, and guess what? They're doing pretty much the same old thing, spreading doom and gloom, only they've hopped on different horses, just as my prediction above said. Hyatt and Lord are selling self-reliance newsletters, McAlvany still has his old doom and gloom newsletter but with no more references to Y2K, and North is soliciting subscribers from his old Y2K Internet sight for an as yet unannounced gloomy adventure.

So I'll make three new predictions:

- They will all be successful with their new doomsday adventures, even reclaiming many of their former followers.
- One of their major predictions for May will be that all the planets of the solar system will line up, causing the planets' combined gravity to wreak havoc on earth in the form of earthquakes, volcanic eruptions, and tidal waves.
- Even though the planets *are due* to line up, as they more or less do every 125 years or so, their combined gravitational pull *will not* cause problems except to prove these false gurus **WRONG AGAIN!**



Prognosticator Dave Duffy

To celebrate my predictions, and in the absence of anyone flocking to my side and telling me what a great predictive genius I am, I hereby inaugurate this magazine's *"End of the World Special"* on page 99. This will be an ongoing blockbuster sale in which we sell something at a great discount. This way you may not remember my accurate predictions, but you'll remember you got something nifty for next to nothing. We'll do this *"End of the World Special,"* utilizing my "one hundred percent correct" predictive powers, for about a year, offering something different each issue and highlighting the latest and most calamitous *End of the World* scenario.

At the end of the year I predict all the fake gurus will make a lot more money than me, and the only letters I'll get will be from the followers of the fake gurus, and they will all be angry letters. Double bumper!

## New *Energy Works* section

This issue also inaugurates our new *Energy Works* section (see page 36), which will be edited by Michael Hackleman. This will be an ongoing 16-page section devoted to independent energy, such as solar, wind, hydro, and generators. We'll integrate the energy articles into building articles whenever possible. We have high hopes for this new section; please let us know what you think of it.

## E-subscription

If you have access to the Internet don't forget to check out our \$10 Electronic Subscription on the Internet. If you already subscribe to the print edition, an Electronic Subscription is only an additional \$5.

## New paper for this issue

You'll notice the new paper for this issue. It's a bit coarser than our old paper. We did it to save a little money, thereby allowing us to increase the number of color pages. Δ



# My view

## The real gun criminals

If a person robbed a bank and murdered someone, and you drove the getaway car, would you be guilty of accessory to robbery and murder?

If a man raped a woman after you intentionally provided him the key to her home knowing his intentions, would you be guilty of accessory to rape?

The answer to both questions, as we all know, is yes, because you knowingly facilitated the commission of the crime.

Why then are not the likes of President Clinton, Senator Charles Schumer (D-NY), or Senator Diane Feinstein (D-CA) guilty of accessory to murder and rape for their support of laws that restrict the use of firearms, since study after study clearly show that the personal possession of firearms dramatically lowers the incidence of murder and rape in America?

According to economist John Lott, author of the landmark statistical study, *More Guns, Less Crime*, restrictive gun laws are directly linked to increased murder and rape rates. Lott studied the crime rates for all U.S. counties spanning an 18-year period. He found that the highest murder and rape rates were in the counties with the most restrictive gun laws, the second highest in those with less restrictive gun laws, and the lowest in those with “right to carry” laws, that is, where residents had a law-protected “right to carry” a personal firearm so long as he or she met certain minimum requirements.

Thirty one states now have “right to carry” laws, and all of them are experiencing dramatic declines in murder and rape since the laws were enacted. The statistics indicate that if the 29 states without “right to carry” laws were to adopt them, at least 1,000 murders and many thousands of rapes would be prevented every year.

Can any scientific study be clearer; the evidence could not be more overwhelming. Even school shootings are all but eliminated in states that have “right to carry” laws. The most recent highly publicized school shootings—in Michigan where a 6-year-old girl was shot to death by a classmate, and at Colorado’s Columbine High School—took place in states that do not have “right to carry” laws.

Although other countries were not studied by Lott, the data is already coming in: Disarmed Australia and England are both experiencing an explosion in violent crime, while armed-to-the-teeth Israel and Switzerland are experiencing little crime and no school shootings.

Lott’s definitive study is known to Clinton, Schumer, and Feinstein, as well as to other anti-gun politicians, members

of the mass media, Handgun Control Inc., and all the other groups who want to ban guns and disarm American citizens. But they continue to dance on the graves of the latest shooting victims, using their bodies as platforms to launch ever more calls to ban ever more guns. They tout their blatantly false anti-gun dogma, knowing full-well that the truth about gun statistics makes them liars and accessories to murders and rapes.

Their friends in the mass media are just as guilty. They make sure each shooting at a school or restaurant becomes a high profile media event so the politicians can spout their lies, but the media deliberately ignores the two million times per year a crime is prevented by a private citizen using his or her personal firearm. In the vast majority of cases, the would-be victim merely has to brandish the gun to stop the crime, but every year there are many women who shoot down their would-be rapists just in time and others who shoot down their would-be murderers just in time. But the unarmed ones are often raped and murdered.

Why are not these lying members of the media also charged with being an accessory to murder and rape, along with our lying politicians? People like Clinton, Schumer, and Feinstein don’t care that their statements are false. They don’t even care if they are later corrected by someone armed with the facts, because they know that the corrections will get little play in the mass media while their initial distortions will get repeated again and again. These politicians and their media allies are deliberately distorting the truth to advance their anti-gun ideology. To them, our children are merely pawns in this ideological struggle. If a few of them get killed because of their distortions, so what!

Why do we let these people get away with their lies when it is our children and our friends who are being murdered and raped? Hypocrite Feinstein is responsible for California’s very restrictive gun law, which makes it next to impossible to get a permit to carry a concealed handgun. But on the sly she has obtained a concealed handgun permit for herself. What gall! She knows how to be safe, and she wants to protect her own butt and let us and our families take our chances of becoming a victim of her law—all in the name of her anti-gun ideology.

People like Clinton, Schumer, and Feinstein don’t fight on ground that tries to explore the truth. They fight on ideological grounds—their ideology of a disarmed America where only the government has guns.

And let us not forget what history teaches us about a disarmed nation where only the government has guns. It has ushered in every tyranny of the last hundred years, from Hitler’s Nazi Germany to Stalin’s Communist Soviet Union—so the government can enforce its ideology on the rest of us.

Which brings up a final question: Why are we letting this happen? — *Dave Duffy*



# ARMED female

BY MASSAD AYOOB

I didn't come up with the term "Armed and Female." Paxton Quigley did. She's a neat lady. I know her, trained her, taught with her, and have the privilege of recommending her book to people, because it's an absolute manifesto for women who take control of their surroundings. In fact, I borrowed the title just to get your attention.

Which, now that I have it, shall be directed to the concept of women and defensive firearms. I remember one of my first female students. She was in her sixties, an accomplished academician and author with strong roots in what was then called "women's liberation." She had considered the gun to be a hideous side effect of testosterone poisoning. Then, she was assaulted by armed criminals and nearly died. "It occurred to me," she told me later, "that I had neglected one element of my empowerment."

She bought a .38 Special. She came and took our training. We got her into a better .38 Special and showed her how to use it. That one phase of missing empowerment was now complete.

End of story.

Yes, dammit, it is that simple. I am an unlikely feminist, but a feminist nonetheless. I have knowingly risked my career more than once to testify for women, in a world where I was a firearms instructor dependent on cops coming to me for training and I was

testifying against police departments that wrongfully fired female officers for not "qualifying" with their department's male-oriented guns, holsters, and shooting techniques. When I testified against the FBI in 1980 for the women in the class action suit of *Christine Hansen, et. al. V. Federal Bureau of Investigation*, I was told it would be the kiss of death to my career. So be it. The women were right and the Bureau was wrong, and I couldn't have looked my then three-year-old first-born daughter in the face had I not gone there and spoke the truth.

I testified. The court listened. The court found in favor of the women,

and the Bureau was ordered to "revise and update its obsolete and sexist firearms training." The Bureau's sweeping revisions followed in 1981, bringing them solidly into the mid-1960s, but by the Year 2000 they were back at the cutting edge for the first time in half a century. Some of the old heads still hate me for it. Tough \_\_\_\_ (you supply the word).

For more than a century, the handgun has been called in American lore "the equalizer." There is truth here. The sad part of the truth is that a gun makes an emotional dwarf like Sirhan Sirhan equal to the destruction of a giant like Robert Kennedy. The happy



Justine Ayoob, 13, and proud author after winning national champion parent/child team title. Justine used a Springfield .45 automatic with full power ammo.



Cat Ayooob, then 19, after winning a national championship with her Beretta 9mm and Black Hills ammo. (Photo courtesy Guns Annual.)

part of the truth is that a handgun makes a petite and gentle female equal to the destructive power of an enraged adult male, or a gang of them.

Remember back a quarter century to the murder of Kitty Genovese in New York, stabbed to death before the eyes of at least 38 witnesses who did nothing. Their statements afterwards made “I didn’t want to get involved” a catch-phrase for the downslide of American values. Remember the incident called “the wilding” in Central Park much more recently, a brilliant Manhattan woman gang-raped and beaten into profound brain damage by

**“Perhaps the meek will inherit the earth, but not until those who ain’t meek are done with it.”**

a gang of “youths” armed only with their physical strength. Remember these, and tell me again that women have no need for guns.

### Isolation factor

When we return to values of the past, we must remember the priorities of those who lived that life and made it work. If we escape the modern lifestyle for the “backwoods home,” we need to remember how those before us made that lifestyle work. Oh, yeah: grow your own food. Oh, yeah: can’t be dependent on constantly-plowed roads and constantly-running electricity. Oh, yeah: can’t be dependent on instantly-responding emergency services. Services like fire-fighters...paramedics...and police.

If you needed fire extinguishers and battery-powered smoke alarms in the city, you really need them in the hinterlands. If you needed emergency medical skills in the city, you need them far more when ETA (estimated

time of arrival) of EMTs or paramedics is measured on the minute hand or maybe even the hour hand instead of on the second hand.

And, if you need cops—armed men and women prepared to use force to protect you against the most violent armed criminals that roam abroad in society—well, sad to say, the same need for self-sufficiency is stark. Welcome, not just to American society, but to the Planet Earth.

Face the reality. Perhaps the meek will inherit the earth, but not until those of us who ain’t meek are done with it.

It is not a choice of being predator or prey. A lot of people miss that, including one otherwise intelligent reporter who went through my school recently. If you become a wolf to ward off the other wolves, you have defeated your own purpose. You have, as my generation learned to say, destroyed the village in order to save it.



No. The ideal is to be the sheepdog. You did not come with intent to harm. You came with intent to protect. If the wolf approaches your flock, you will bark to warn him off. If he comes closer, you will threaten with your more aggressive presence. And then, if he is stupid enough to attack, you will do what instinct tells you to do to a predator who is trying to tear your lamb's throat out.

You will interdict the predator. And you will do what you must to stop him

some techniques work better for women than for men.

Let's look at gun size first. In a rifle or shotgun, the most important dimension is called "pull length," the measurement from the butt of the gun to where the finger touches the trigger. A good rule of thumb is that the long gun fits you if you can have your finger on the trigger and the butt reaches just to the inside edge of your crooked elbow. With a handgun, perfect fit is achieved if the web of the hand

average man's. She will have less upper body mass and strength than her brother. Thus, some shooting techniques may work better for her than for him, or vice versa. For example, most men operate a semiautomatic pistol by holding the frame in their dominant hand, and reaching across their chest with the free hand and grabbing the slide to "rack" it back. This is an upper body strength inten-

**"As he bent to remove his pants, she smashed him in the head with a table lamp, picked up his dropped gun, and emptied it into him."**



Proud dad Pat Higgins coaches daughter Laura, 11, with CZ 75 9mm pistol.

from harming that lamb, even if you must tear *his* throat out.

And in the end, if you were not born to be the protector like the sheepdog, it will suffice if you are a mother sheep with a .38 Special. Because, when you think about it, if mother sheep had guns to protect their lambs, they wouldn't need sheepdogs at all.

## Attributes

Most firearms, and most shooting techniques, were developed by males, for males. Females, particularly petite specimens with proportional size hands, have to work harder to find pistols and revolvers that fit their hands. Some male-oriented shooting techniques won't work well; conversely,

is high on the grip-frame, the barrel is in line with the forearm, and your finger can properly reach the trigger.

If a woman is smaller statured, she may need a custom or cut-down stock. Many rifle and shotgun makers offer versions with a "youth stock" geared for people in the lower five feet of height range with proportional arms. In handguns, some that work spectacularly well with smaller hands are the GI (1911 style) .45 automatic with short trigger, the Browning Hi-Power 9mm, The Kahr series pistols, the Heckler and Koch P7, and the J-frame Smith & Wesson revolver.

Now, let's look at techniques. The average woman's fingers will be shorter by about a digit's length than the

sive technique, pitting arm against arm, and a lot of smaller or older women can't do it well with many pistols. They'll have better luck with the "slingshot" technique, in which the support hand firmly grabs the slide and pulls back while the gun-hand is pushing forward. This can be combined with a turn of the hips that puts the entire body weight into the movement, making it happen almost effortlessly.

The trendy Weaver Stance is not ideal for most women. Centering on an isometric push of the gun hand against the pull of the support hand, it puts a heavy value on upper body muscle tone. If a woman is not especially athletic, she will often be better served with the Isosceles stance, in which both arms lock straight out ahead of the body. The Isosceles is a skeletal support intensive technique, and works irrespective of size or bulk.

Most women also adapt to shooting behind cover better than men. This is because, even if the height is the same, they have a lower center of gravity than their brothers. A she has about 30 degrees more pelvic flexibility than a he, and is generally more limber. "Position rifle" shooting matches that involve such postures as sitting and prone are routinely won overall by woman shooters. Women



are noted for better fine motor skills, which adapt directly to manipulating a trigger. Shooting has been described as "10% physical, 90% mental," and any high school teacher can tell you that females tend to have better concentration than males.

Management of crisis? Hysteria and "getting the vapors" are strictly cultural predispositioning things. There's reason to believe that women may actually be cooler under stress than men, if they are prepared and conditioned for emergencies. Tests we did with telemetry at Lethal Force Institute during high stress crisis role-plays showed that females did not elevate their vital signs in pressure situations as rapidly as men, and their increased vital signs plateaued sooner.

Anyone who says "women can't shoot" hasn't seen skilled female gunners in action. Kim Rhode will smoke most any male on a trap or skeet range. I've seen Gila Hayes win the open state championship, not just that for females, from the men in a combat shoot with a .45 automatic. Bowling pin matches in Barb Budnar's area declined in male attendance by about 50% after she started shooting there; that's how many couldn't take being beaten by a woman. It's a rare police revolver shooter of the male gender who can keep pace with national champion Dorcia Meador, and a rare male bullseye shooter with a hand as steady on target as Ruby Fox's.

Furthermore, the almost unanimous consensus of firearms instructors is that females learn the gun faster than males. Quite apart from the dexterity and concentration factors, they are free of "testosterone poisoning." They don't instinctively balk at taking instructions from a male in a male-oriented discipline as if being a student was some sort of tribal subjugation. It clears the path for a faster learning curve.

### "She won't dare shoot"

Some men fear that women will be too faint-hearted to pull the trigger of a self-defense weapon. Faint hearts

come in both genders. It's in the mind, not in the chromosomes. One offender climbing through a window looked at the gun in one of my female student's hands and said, "You ain't got the balls to shoot me, Bitch." He woke up in the hospital with his bullet-shattered arm amputated. Another rapist told his eight-months pregnant victim, "Bitch, I'm gonna f--- that baby right out of you!" As he bent to remove his pants, she smashed him in the head with a table lamp, picked up his dropped gun, and emptied it into him.

With equivalent training, the female may indeed be deadlier than the male. One good laboratory for this is law enforcement, where use of force training is identical between the genders. I've noticed over the years that police-women are less hesitant than men to use appropriate force. A male officer may be reluctant to reach for his baton in a fistfight or for his gun when the opponent draws a knife, thinking that the manly thing to do is handle things with his bare hands. Females labor under no such delusions, and will be quicker to employ the appropriate "force option," by and large.

### Suggested research

Check out a new organization called MothersArms. It's made up primarily of moms who use guns as one of their options to keep their children protected. Their website is at <http://www.mothersarms.org>. You also want to take a look at *Women and Guns* magazine, found on the better-stocked newsstands.

Paxton Quigley's book *Armed and Female* is the best intellectual treatment of the armed woman's decision. Once an active member of Handgun Control Inc., Paxton assessed her position and took control of her life after a close friend was savagely raped. She's now an advocate of armed women, and a firearms instructor who specializes in all-women's classes. The aforementioned Gila Hayes is one of our premier female firearms instructors of either gender, and her book *Effective*

*Defense: the Woman, the Gun, and the Plan* is must reading. *Armed and Female* is \$5.99 and *Effective Defense* is \$13.95 from Police Bookshelf, P.O. Box 122, Concord, NH 03302. Shipping is \$4.90, which covers both books if ordered together.

Owning a firearm and keeping it for self-defense is an intensely personal decision. That said, it has given me a measure of comfort as a husband to know that my wife is licensed to carry a gun. It has made me feel better as a father to know that my oldest daughter is licensed to carry, and the younger is adept with any of the firearms I keep around for security. Elder brat was national champion woman at the National Tactical Invitational of 1996, and in 1998, younger brat and I won national parent/child team honors at the National Junior Handgun Championships.

There has been a lot of misinformation about women and "the equalizer." The bottom line is, against violent, lethal assault, the firearm is simply the most logical and effective line of defense. When most women carry guns, most rapists will masturbate alone in the dark. Δ

For more Massad Ayoob articles  
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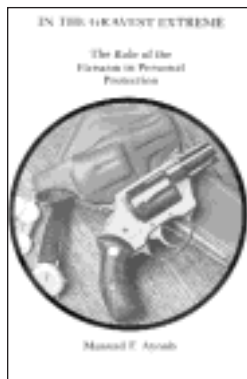
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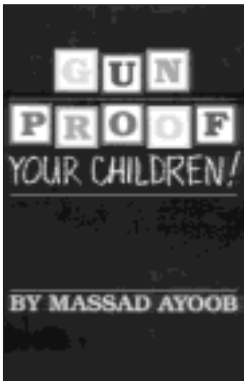
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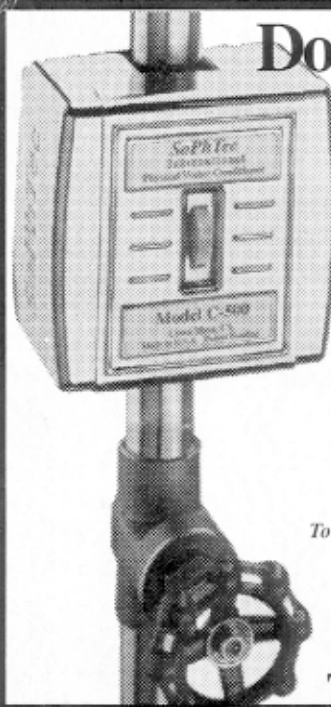
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# *Build this sturdy large-capacity* **Food dehydrator**

*By Charles Sanders*

Drying of food as a means of preservation has been around for a long time. Populations in suitably dry climates all around the globe have dried meat, fish, fruit, and vegetables in times of plenty as a way to provide for the leaner months of the year. My grandmother used to tell us of when she was a child, helping to spread apple slices on the top of a tin-shed roof for drying. An aunt once described stringing fresh young bean pods on a long heavy thread and hanging them to dry, coming up with what they called leather-britches beans. Obviously, these were simple and imperfect food drying systems, but they do show ways in which food can be dried at home.

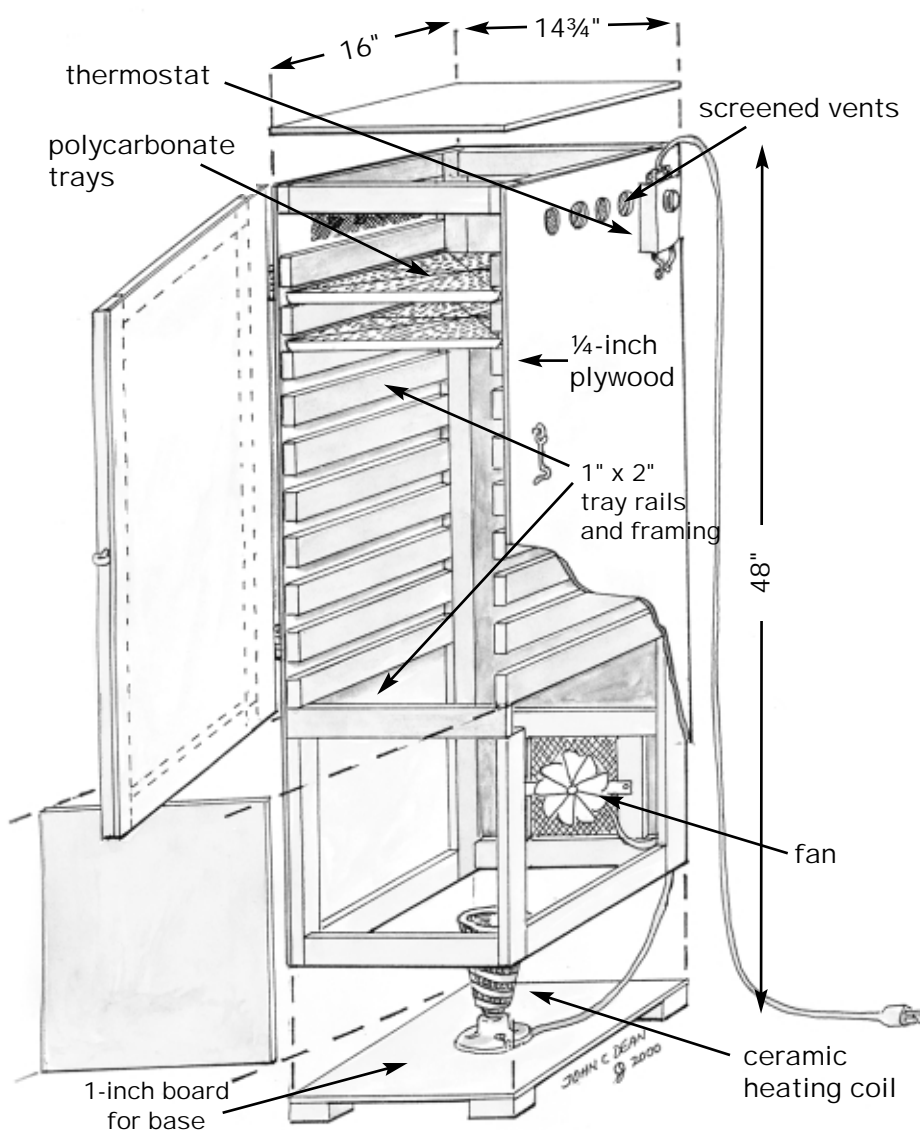
Essentially, dehydration of food removes the moisture that provides the environment conducive to the growth of bacteria. Removal of the moisture results in a product that can be stored for months or even years. Fortunately, for those of us in the less arid climates, methods exist which enable us to dry suitable quantities of foods at home without having to spread the food out on our rooftops. In fact, a really good food dehydrator can be made easily.

For the past few years, some round plastic food dehydrators have been available at retail outlets, by mail order, and from "infomercials" on TV. These units introduced many people to food drying. The ones I examined, however, were too lightly constructed to stand up to many years of regular and heavy use. They also lacked the

capacity to do much in the way of drying a large quantity of food.

Other commercially available dehydrators that I have seen used were large, high quality units. These models were mounted on rollers and resembled a portable dishwasher in size. These units could dry a considerable quantity of food at a time and were being put to heavy use by the family who owned the two of them. They were also way too expensive for me.

When I decided to begin food drying, I did so after visiting with the folks using the floor model dehydrators described above. These friends showed me containers of dried, diced carrots, onion slices, apples, and other fruits and vegetables. What impressed me the most about this method of preservation was the amount of space that was saved by drying the foods. For example, a five-gallon bucketful of carrots could be sliced, steamed,





and dried and made to take up the space of a shoebox. Half of a five-gallon bucket of apples, when sliced and dried, fit nicely in a gallon-sized freezer bag.

Since building our own dehydrator, we have dried jerky, apples, strawberries, carrots, onions, green beans, bananas, fruit leathers, and several other fruits and vegetables. Some of these were experiments, but we use the dryer each year to put up several bushels of sliced apples. These treats make a healthful and tasty alternative to junk snack food for the whole family, much better to munch on than potato chips.

Below are instructions for building a food dryer similar to ours. Use your imagination, intuition, and abilities when building your own. Use what you have or what you can obtain easily and cheaply in the way of materials. Make your food dryer to suit your own circumstances. It might be nearly identical to the one described or a vastly improved version.

For our dehydrator, I began by purchasing the light polycarbonate trays. I then designed and built the dryer cabinet around them. After considering various materials for constructing the trays from scratch, and after studying the effects of these materials on some foods, I decided the trays were what were needed. The acids in some foods may react unfavorably with certain metals such as aluminum screen. Wood, as used in dowel rod-type trays may absorb food tastes and odors. Fiberglass screen can leave minute fiberglass splinters sticking to the dried food. Galvanized screen is out, due to its zinc-based coating reacting with foods. One material which I have not tried, and which may warrant experimentation, is nylon screening. If stretched tightly on light wooden frames, this material might be durable enough to withstand repeated use. I do not know of any health problems posed by the use of the material on dryer trays. The trays that we used were simply better than any alternative that I could come up with at the time.



Left: The dryer cabinet and the polycarbonate trays. Right: The 600-watt ceramic heat coil screws into an ordinary porcelain lamp base.

Whatever the size or material of your trays, design the cabinet size around them allowing for sufficient room below for the heat element and room to easily fit the trays within. I am providing the measurements below to serve only as a guide for your own construction process, because the type and size of trays that you come up with may vary from that which I devised. Our dryer measures 48" tall by 14 $\frac{3}{4}$ " wide by 16" deep. The trays themselves measure 13 $\frac{3}{4}$ " square. A slightly different size tray is available from Excalibur Dehydrators, listed at the end of this article.

In the accompanying photographs and drawing you can see some of the construction details of our dryer. I made the base of heavy one-inch particle board because that is what I had. Quarter-inch plywood made up the sides and top of the cabinet. I ripped 1 x 2s for the framing in the cabinet and for the rails which support the drying trays.

Ordinary screen wire covers the six x six-inch fan opening. Holes cut near the top of each side are covered on the inside with strips of screen and allow moisture and air to escape.

If you do not have one, a wide variety of suitable fan and motor assemblies are available from: W.W. Grainger Distribution Group, 1901 Plantside Drive, Louisville, KY 40299. Request one of their catalogs. This is an electrical supply wholesaler. You may have to have a retailer order this unit for you. Order fan-motor assembly #7C7-27. The cost was under \$20. Just remember to use a relatively small fan (about four inches in diameter) to move the air rather slowly through the dryer. You want the fan to ventilate the box and move the heated air throughout, but not to cool the food on the trays.

The heat source is a ceramic heat coil screwed into a regular porcelain lamp base. The lamp fixture is secured to the base and either wired directly to a three-prong plug or through a thermostat. The coil was purchased from a local hardware store and is rated at 600 watts. The cost was less than \$5. The lamp base cost about a dollar.

Although it isn't absolutely necessary, I added a thermostat assembly that I had scrounged up. This addition helped to cut down on tending and tray

rotation. The thermostat easily handles the appropriate 100°-150°F temperature range. If you purchase a thermostat, specify a fairly narrow temperature spread for the on-off cycle.

Old unmatched hinges for the door and hooks and eyes for the closures were scrounged from the workshop.

## Dried apples

Since dried apples are so popular at our house, I will give you the simple directions for drying them as an example of how simple it is to dry foods. First, I use one of the clamp-on slicers that core, slice, and peel the apples in one operation. It takes about three to five seconds to do one apple with one of these peelers. I have looked over several models and prefer the one I purchased from Back To Basics Products, listed at the end of the article. With this peeler, a simple knife cut is all that is needed to produce a handful of neatly prepared apple rings. By the way, you can save the peelings

and cores and make a nice batch of apple jelly from them later.

As I peel the fruit, I place the rings in a bowl containing a solution made from about a half-cup or so of lemon juice and about two to four cups water. This acid bath prevents the apples from turning brown as they dry. I have also heard of some folks dipping the apple rings in plain 7-Up or Sprite for the same purpose.

After dipping the apples, I drain them in a plastic colander and arrange them on the dryer trays. Let them dry to a chewy leathery consistency and they are ready to store. We have found that the 10 trays full of freshly dried apples fills up a one-gallon zip-top plastic bag. After bagging, they are stored in the freezer. They make great snacks for work, camping, hiking, or TV-munching. They make a really good apple pie as well.

Vegetables are similarly easy to dry, usually requiring a simple steaming prior to going into the dryer. My wife

has also used the dryer to dry sprays of flowers such as baby's breath, statice, and globe amaranth for use in dried bouquets and wreaths. It worked quite well for that, too, as she prepared those items for sale. Herbs can also be dried in the dehydrator.

## For more information

- Making the Best of Basics by James Stevens. Great section devoted to food drying. Available from *BHM*.

- W. W. Grainger, Inc. Visit their website at [www.grainger.com](http://www.grainger.com) to browse their online catalog. Or write them at 100 Grainger Pkwy., Lake Forest, IL 60045.

- Excalibur Food Dryers, 6083 Power Inn Rd., Sacramento, CA 95824. Tel.: 916-381-4254. They make high quality food dehydrators and trays.

- Back To Basics Products, 11660 S. State St., Draper, UT 84020. Website: [www.backtobasicsproducts.com](http://www.backtobasicsproducts.com). Δ

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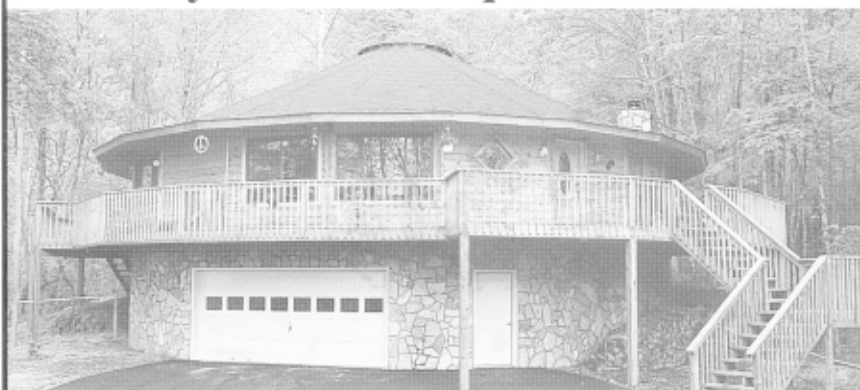
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By Rev.J.D. Hooker

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There is a method of building, called wattle and daub, which involves a framework of woven rods and twigs, that resembles basket weaving (this is the wattle), and plastered over with a clay mixture (this is the daub). Wattle and daub building methods require only the same abundant and readily available materials utilized back in prehistoric times and, using only a few modern tools (pruning

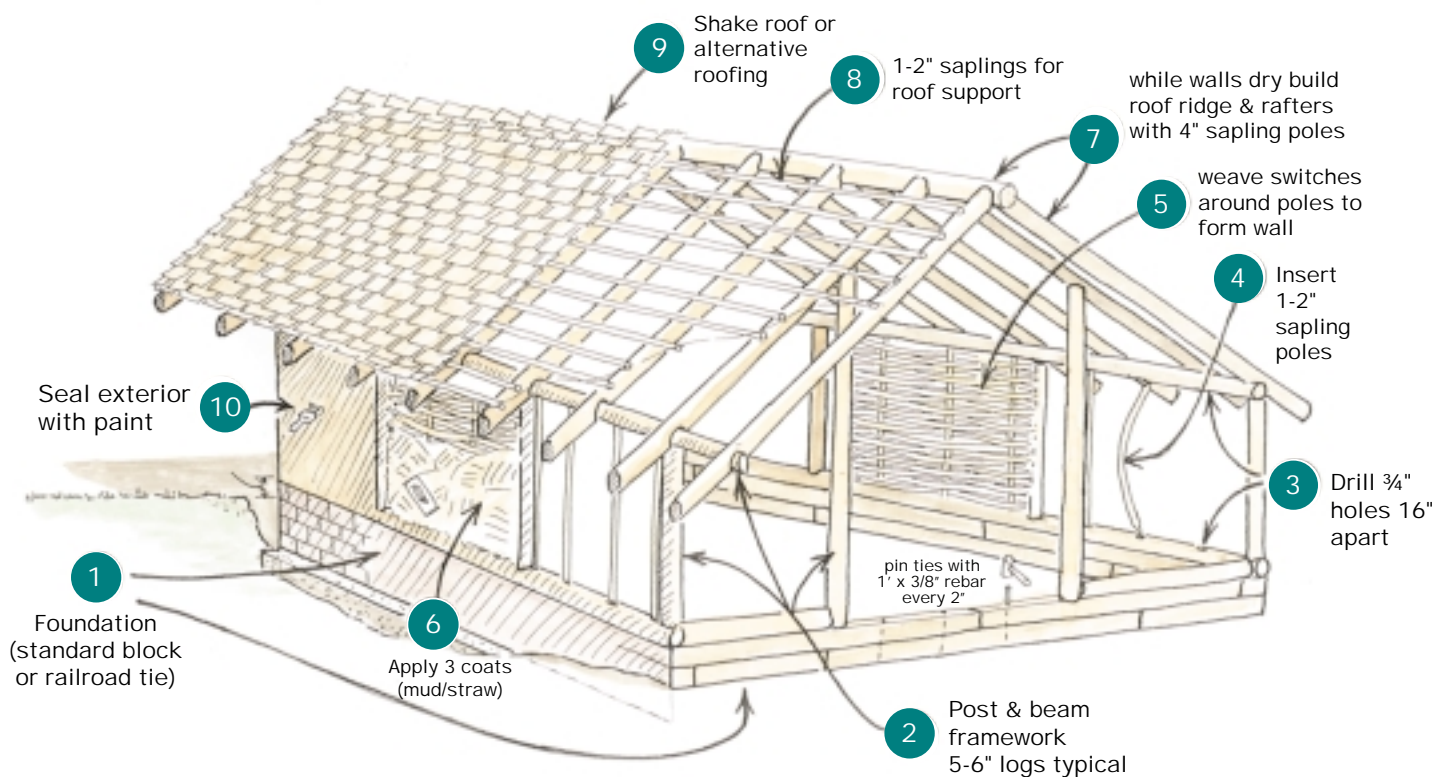
shears, loppers, electric drill and bits, chain saw, nails, etc.), this ancient building method requires no more time or effort than most modern ones and still results in a functional building.

Since it is imperative for the adobe-like daubing to be well shielded from ground moisture, some type of damp-proof foundation is always required. Were this particular structure actually intended for human habitation instead of my goats, I’d use some type of standard concrete or masonry footing. However, as its only use will be as animal housing, I’ll simply double stack railroad ties flat on the ground around the perimeter as a moisture block (1).

Next I intend on using 5 or 6-inch diameter logs to put together a sort of post and beam support system (2). I’ll also use my electric drill, with a 3/4-

inch spade bit, to drill holes spaced 16 inches apart through the top and bottom beams, as shown (3). Of course, like most livestock, goats don’t need any sort of insulated living quarters, just shielding from rain, snow, and especially drafts. But if the building did require insulation of some sort, I’d use wide beams instead of the logs and drill two rows of holes to fashion a double wall which could have the interior space filled with sawdust, shredded straw, or other insulating material.

The next step will be to trim the ends of a whole stack of slender (1 to 2-inch diameter) sections of sapling poles to fit nicely into these holes, as shown (4), after which hickory and willow switches, wild grape vines, slender oak and other tree shoots, or any other slender and flexible woody



material will be tightly woven through these uprights (5). If you've ever seen someone weave a basket, you'll easily get this part.

Since I plan on doing the building in early spring, my materials should be plenty limber enough to work with easily. Other times of year, though, I've found that it's usually necessary to soak all of these shoots and vines in water for a couple of days before putting them to use.

Next I'll use my home-built shredder to chop up a whole bunch of straw, which I'll use my rototiller to thoroughly mix in with the clay-based soil enclosed by the railroad tie base. Then, since each type of clay-based soil seems just a little different from any other to work with, I'll use the garden hose to add water until I've found an easily spreadable mixture.

Now I'll use a wooden concrete float to plaster both sides of the wattle walls about 3/4-inch thick with this muddy mixture (6). The surface has to be left pretty rough to help the second coat adhere. Then I'll let it dry out for a couple of days, after which the same methods will be used to add a second coating of this mud/straw mixture. This layer will be only about 1/2-inch thick and not quite as rough as the first coat. This will also be left to dry for a couple of days. A final thin finish coat is then applied as smoothly as possible.

It's just as important to keep the top and sides of this type of wall protected from moisture as it is the bottom. For this reason a large overhang is vital when designing a roof for this sort of structure. Such an overhang will not only keep most run-off water from running down your walls, it'll also direct the runoff some distance away as well, which will cut down a whole lot on splash problems.

As each layer of daub dries, install the roofing (7, 8, and 9). I should mention that though I only intend on making the sidewalls of this new structure 4-feet tall and 10 or 12-feet wide, by using a 12-12 pitch on the roof I'll not only wind up with plenty

of head room but with some overhead storage space as well. This is one of the reasons it used to be common to see such steeply pitched roofs on so many small outbuildings.

Also, since I'll be sticking mostly with natural materials, available for free right here on the place, I'll be using roughly 4-inch diameter sapling poles as rafters. If your own location doesn't have quite as much of this sort of material available, regular lumber will work just as well for this.

Though I'd like to put a canvas roof on this building (like I wrote about in issue #39, May/June 1996), a big storm last month took down this huge old white oak tree which had grown down by the creek. It looks like I'll end up splitting part of that up into shakes for the roof covering.

Most any other roofing material will work just as well though. However, unless your walls will positively be tall enough to keep your animals from reaching the roof, I would definitely stay away from any sort of thatching material, as most animals, especially goats and sheep, will quickly devour all the thatching they can reach. (Please don't ask me how I know this.)

The last time that I put up a building of this type, soil removed in mixing up the daubing lowered the interior ground level by more than six inches. Anyone raising taller walls will find themselves with an even greater "excavation." So, while the layers of wall plastering are drying, this is also a good time to fill in that space with woodchips, sawdust, or even pea gravel. With a layer of straw leaves or similar stuff spread on top of this, the animals will be assured of nice, drainable bedding. Depending on what uses you might have for your own building, other floorings you may want to use could be flag stone, wood, rammed earth, cobble stone, etc.

Though I don't plan on doing this with this particular building, there isn't any reason these same wattle and daub walls can't be used on the structure's interior either, whether it's to

fashion separate rooms or divide an area up into separated stalls.

Once the walls have thoroughly dried out, a couple of coats of some good grade of exterior paint is needed to seal them off from the elements (10). Even though some pretty high quality commercially made exterior paints are readily available in most any store, I've found that the hard, tough, plastic-like surface of home-made milk paint (covered in the article on canvas roofing) is pretty well unbeatable for this use. However, since a big part of the reason we're increasing the size of our flock of goats is to increase milk production, I already know I'll be spending some money to buy milk from a dairy farmer to make paint this time.

Still, even though I'll have to purchase some nails, some paint-making supplies, and maybe spend a couple of bucks on gas for the chipper, rototiller, and such, with only a minimal monetary outlay, I'll be putting up a sturdy, long-lasting, and nice looking building that will last for years. Δ

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# Picnicking with class!



By Jean Louis L'Heureux

Picnic weather has arrived and there's nothing like enjoying good food with family or friends in the scenic outdoors. I have several recipes that have made my outings classy occasions, and I include them here for you to try. They have been designed to achieve the ultimate appreciation of good food using unusual and sometimes expensive ingredients. If you cannot obtain some of the ingredients, or want to substitute a more reasonably priced item, feel free to do so. At times I suggest an alternate for you to use.

I recommend shopping on the Internet for the items that are hard to find in your local markets. Living in southern Oregon as I do, I often have this problem and have solved it by shopping the worldwide web.

## Italian antipasto

This dish should be made several hours ahead, preferably the night before. The longer it marinates the better the flavor. I have marinated it for several days without any detrimental effect.

I have used some expensive Italian cold cuts in my recipe but have left room for you to substitute more common and less-expensive meats and cheeses.

## Italian meatballs

Everyone has their favorite recipe for meatballs. This is mine. The addition of toasted pine nuts gives the meatballs a nice crunchy taste. If you are picnicking at home you can cook these meatballs in the oven for better



Jean Louis L'Heureux

control. Cook them on a baking sheet for 30 minutes or until they are done. To cook on the barbecue, place them inside an aluminum foil sealed pack, making sure you use two layers of foil. You may also use the new barbecue bags made by Reynold's.

## Italian antipasto

### Marinade:

1 large garlic clove, minced  
2 Tbsp. balsamic vinegar  
2 Tbsp. red wine vinegar  
½ tsp. dried rosemary

1 tsp. oregano  
¼ tsp. hot pepper flakes  
½ cup extra virgin olive oil  
1 tsp. dried basil

### Antipasto:

3 large carrots, cut diagonally, into ¼-inch slices  
1 large fennel bulb cut in ¼-inch slices  
2 roasted red bell peppers  
2 roasted yellow bell peppers  
12-oz jar pepperoncini (Tuscan peppers), rinsed, and drained  
¾ lb. black or green olives  
¼ lb. sun-dried tomatoes, packed in oil, drained, cut into strips  
¼ cup minced parsley leaves  
¼ lb. of sliced cheese-provolone and mozzarella\* cut into ¼-inch strips  
1 lb. of assorted Italian cold cuts such as pepperoni, soppressata, capricola, etc.\*\*  
½ lb. Genoa salami  
2 7-oz jars marinated artichoke hearts, rinsed and drained

**Make the marinade:** In a small bowl whisk together the garlic, vinegars, basil, rosemary, oregano, red pepper flakes, and salt and pepper to taste. Add oil in a stream, whisking until marinade is emulsified.

In a large saucepan of boiling water blanch the carrots and fennel for three to four minutes, or until al dente, drain, and plunge into a bowl of ice water. Let vegetables cool and drain well. In a large bowl toss together the carrots, fennel, roasted peppers, pepperoncini, olives, sun-dried tomatoes, sliced meats & cheeses, artichoke hearts, marinade, parsley; chill well, covered. Transfer after chilling to a platter with fresh vegetables such as a bed of lettuce, cucumbers & tomatoes.

\*Alternate: You can use your favorite American cheese or another type of cheese.

\*\*Use whatever Italian cold cuts you can find or substitute your favorite cold-cuts—such as boiled/pressed ham, bologna, etc.



## Italian meatballs

### Meatballs:

2/3 cup fresh breadcrumbs	1 large egg
3 Tbsp. milk	1 garlic clove, minced
1/3 cup grated Parmesan cheese	1/4 tsp. ground black pepper
1/4 cup finely chopped onion	2 Tbsp. dried currants
1 lb. sweet Italian sausages, casings removed	
3 Tbsp. chopped fresh basil	
2 Tbsp. pine nuts, toasted	

### Sauce:

2 Tbsp. extra virgin olive oil	1 1/2 cups chopped onion
2 garlic cloves, minced	4 Tbsp. chopped fresh basil
2 28-oz. cans diced Italian tomatoes or regular tomatoes	

**Meatballs**—Preheat oven to 350°F. Lightly oil baking sheet. Mix crumbs and milk in mixing bowl and let stand for a few minutes. Mix in Parmesan, onion, basil, egg, garlic, pepper, sausage, pine nuts and currants; blend well. Wet hands and form mixture into 1 inch balls. Place on sheet and bake until light brown and cooked through—approximately 30 minutes.

**Sauce**—Heat oil in heavy pot over medium-low heat. Add onion and sauté for approximately 8 minutes, until golden. Add garlic and sauté 1 minute more. Add the tomatoes with juices and 2 Tbsp. basil; bring it to a boil. Reduce heat and simmer until thick, breaking up tomatoes—approximately 1 hour. Mix in 2 Tbsp. basil and season to taste with salt & pepper. Mix sauce with meatballs.

Remember to puncture the top of the pack to let the steam escape.

For the sauce, I would prepare it at home and transport it to the picnic site. I've included a good recipe for a tomato sauce to serve over the meatballs, but you may use your own favorite sauce.

To toast the pine nuts place them on a baking sheet in a single layer and

toast for approximately five minutes in a 400° F oven. Watch them carefully to prevent burning. Do not do anything else at this time. After about three minutes stir the nuts and turn the sheet around.

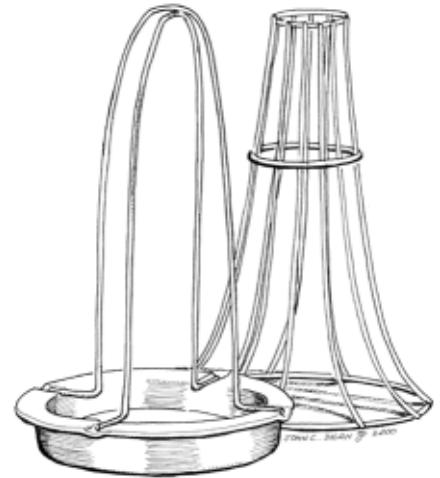
## Chicken

Before you leave on your picnic, prepare the chicken marinade and put

## Roast chicken rub (for 4-5 lb. chicken)

1/4 cup paprika (or to taste)	1 tsp. black pepper
1 Tbsp. packed brown sugar	1 tsp. cayenne pepper (or to taste)
1 Tbsp. sugar	1 tsp. dry mustard
2 tsp. salt	1 tsp. garlic powder
1 tsp. celery salt	1 tsp. onion powder

Mix all the ingredients of the rub and place into a covered jar for storage. This rub will store in the refrigerator for several months. Rinse the chicken, inside and out, blot dry. Sprinkle 2 tablespoons of the rub inside the cavity and all over the outside of the chicken. Place 1 tablespoon in the can you will insert into the chicken or wire rack with the can 3/4 full of chicken broth or beer. The chicken should take a couple of hours to cook thoroughly. You will have to add some fresh briquettes after about an hour. To add a smoked flavor you can add presoaked wood chips to the coals before you start to cook and again after 1 hour.



Vertical roaster

the chicken into a gallon-size plastic bag that has a sealable top. Pour in the marinade, shake well, and the chicken will be ready to barbecue when you arrive at the picnic grounds. Alternates: you may substitute regular oil for the olive oil, and minced onions for the green onions.

## Roast chicken

You may purchase a special rack, called a vertical roaster, for roasting chicken on the barbecue. It's a wire rack in the shape of an upside-down funnel. Or you can prop the chicken up, with the opening of the body cavi-

## Chicken

### Marinade (per bag):

2 Tbsp. extra light olive oil
1 Tbsp. honey
1 tsp. paprika
1 Tbsp. hot sauce
1 green onion (minced)
2 boneless chicken breasts (4 halves)
or 8 thighs or 4 leg quarters

The marinade recipe above is for each bag of chicken. If you want white meat only, you can put 4 half breasts in a bag, for dark meat, use 8 thighs or 4 leg quarters per bag. Of course you may mix white and dark meat.

Reserve 2 Tbsp. of marinade per recipe to sprinkle on cooked chicken just before serving. Do not use marinade that has had raw chicken in it to sprinkle on cooked chicken.

ty down, on the grill. Into the body cavity (or the bottom of the wire rack if it doesn't have a built-in cup) place a small can filled about three quarters full with chicken broth (or beer) and one Tbsp. of the rub mixture. This will help flavor the chicken as it cooks. But if you do not use a vertical roaster with a built-in cup, be careful when removing the chicken to avoid burning yourself. One way is to slide a stiff metal spatula under the can and chicken to help you remove them together, while you grip the chicken with tongs. Make sure you have a dish right next to the chicken before you attempt to transfer it.

## Steak

You can prepare the steaks with the peppercorn mixture before you leave for your picnic and place them in plastic bags to transport to the picnic area. I like to use Porterhouse or T-bone steaks, but you may of course choose less expensive cuts such as rib or sirloin steaks.

For the marinade I like to use a mixture of available peppercorns—black, white, red, green and whatever other kind I can find. To use peppercorns, place them into a pepper mill and grind them, or place them under the bottom of a pot and crush them by

## Steak

### Marinade (for 2 steaks):

2 Tbsp. peppercorns, crushed  
1 ½ Tbsp. chopped fresh thyme  
or 1 Tbsp. dried  
1/8 tsp. cayenne pepper  
2 porterhouse or T-bone steaks  
Alternates: Sirloin or rib-eye steaks

The marinade recipe above is for two steaks—increase or decrease the recipe in proportion to the number of steaks you use.

Mix marinade in a bowl and press the mixture into the steaks on both sides. Place into plastic bags and seal. This should be done before you leave or if you're in the backyard 30 minutes before cooking them.

## Olive oil

Olive oil is made by using the entire olive; the pulp, skin and even husk. Many years ago the oil was extracted by crushing by hand in spherical stone basins. Today, in a similar method, olives are crushed by mechanical stainless steel grindstones, and result in an olive paste. The paste is mixed with water, placed on circular hemp mats, stacked, and pressed. This "cold pressing" yields an olive liquid of oil and water which is later separated. It is the cold press method that enables olive oil to maintain its flavor, color and nutritional value. The majority of olive oil is now produced with only one pressing.

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pushing with a sliding/banging motion. Press the marinade mixture into both sides of the steaks and put them in plastic bags to marinate on the way to your picnic.

## Barbecued ribs

This is a simple recipe for baby-back ribs that you prepare by sprinkling salt and cumin on both sides of the ribs. Cook them on the barbecue on low heat (around 250° if you can control the temperature) for around 2 hours. After 45 minutes start basting

the ribs with the barbecue sauce until they are done.

Happy picnicking! Δ

## Barbecue sauce

1 jar of your favorite barbecue sauce  
Then add:

½ to 1 cup of orange juice (to thin out)  
½ cup orange marmalade  
1 tsp. cumin  
½ tsp. allspice  
½ tsp. cinnamon  
1 tsp. salt

Simmer until thickened and ready to use. If you have a barbecue with a side burner you can do it at the picnic site or put in on the side of the grill, otherwise do it at home and transport to the picnic area.

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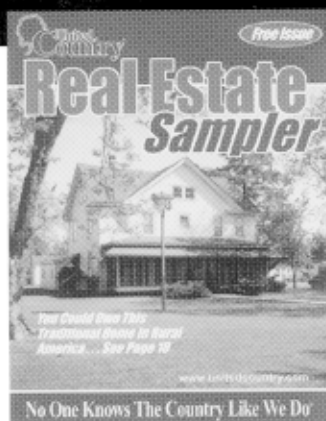
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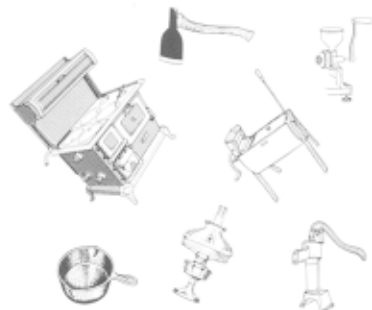
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**By Anita Evangelista**



**Far left:** A happy “pet” dog—½ pug and ½ dachshund—a funny, small, lively dog.

**Left, top:** A “pet” collie dog. He’s an outside dog, but his only job is to play with school-age kids.

**Left, bottom:** A “working” watch dog—½ Great Pyrenees and ½ Newfoundland. This 10-week old puppy already weighs over 50 pounds—he’s going to be over 100 pounds at maturity. He has been swimming in a muddy pond. These breed combinations result in dogs that literally “bark all night long” keeping predators and strangers away.

tasks, either around the clock like the guardians, or on-demand like the Border collies and hounds.

But in a backwoods setting, other “working” dogs might also fit the bill. What function do you wish the dog to accomplish? Pulling a cart loaded with firewood (St. Bernard or Newfoundland), or pulling a sled in cold weather (husky or Samoyed), or aggressively barking at strangers (German shepherd or rottweiler), or friendly greeting of strangers (golden retriever), or watching the kids (collie), or even keeping the mice down in the barn (terriers)? There are breeds for every task.

Pet dogs, to my mind anyway, are animals whose basic skill is to pal up



**Above:** Young “working” Border collie dogs in their outdoor run and weather-proof dog house (recycled plastic barrel). **Above (inset):** A “working” Anatolian livestock guardian dog. This dog stays with Angora goats outdoors year-round, chasing away predators and human strangers.

**W**hen you’re looking for a dog to fit into your country life, there are few other topics as liable to get you into a fistfight. People get very sensitive about their dog, its breed, or its characteristics—more so, even, than they do about their own kids. After all, your kids were just born—with the dog, you made a choice. The kind of dog you have says a lot about who you are.

All right. With the sensitive part out of the way, we can get down to business.

What kind of dog is the best for a country home? As with nearly every

other rural subject, it depends...in this case, on five crucial factors: work or pet? size and coat? temperament? kids? costs and benefits? We’ll look at these one at a time.

### Working dog or pet?

Contrary to popular opinion, the first decision about a country dog shouldn’t be “what breed?” It should be what the dog’s purpose will be. Either the dog will be a buddy and family pet, or it will be a working partner. Here’s the difference: a pet dog fulfills your feelings and usually lives in the house. A working dog performs a valuable function and has his own house or

kennel outside. A working dog can also be a pet...but a pet might have a hard time doing useful work.

Working breeds have been bred for generations to perform a particular task. They don’t need much encouragement or training. They do their work because they love it, and because every fiber of their being requires them to do it. Typical working dog breeds include Great Pyrenees (large livestock guardian), Border collies and blue heelers (medium sized herding dogs), Labrador retrievers (large game-retrieving dogs), or foxhounds (hunting dogs). These kinds of dogs would be expected to perform specific

*Finding the best*

# DOG

*for the country life*





**Left:** A “working” foxhound dog, eager to find a raccoon. This large outside dog has a loud, baying bark and wants only to sniff and hunt.

**Right:** Bruce and Jamie—Bruce is ½ collie—a good “kid’s” dog.

with people. Pets can also be adequate “bark at strangers” dogs, but since their primary orientation is to “be friends” with humans, they’re not as serious at this as are more aggressive guardian dogs.

A dog is principally a pet when its “occupation” is to hang around, play with the kids, lay near the fireplace, take walks, or be a companion. Pets can be trained to perform some duties such as herding or guarding, but their heart won’t be in it. A pet will do what you ask because it wants to please you, not because it wants to or has a natural inclination to do it. Pets won’t be able to do any task as well as a dog that has been bred for generations for a particular job.

Breeds that make good pets include: pugs, Yorkshire terriers, cocker spaniels, basset hounds, Lhasas, poodles, and shelties. Pets tend to be small-to-medium sized and really require daily contact, petting, and company.

Now, after determining the dog’s potential job...

## Size and coat

Once you’ve narrowed down your dog choices to pet or worker, you’ll want to consider the animal’s full-grown size, which means looking at some factors in your surroundings, as well as the dog’s future “job.” If the dog will be around your children, you’ll probably find a medium-sized dog ideal, big enough to tolerate the kid’s hair pulling and sitting on it, but not so big that one swipe of its tail knocks somebody down. If the dog

will be expected to intimidate strangers, a bigger dog with a loud bark would be best. If the dog is just supposed to keep you company while you work at the computer, then even a small quiet curl-up-in-your-lap could be the choice.

Along with size, the length and composition of the dog’s coat needs to be considered. Dogs with beautiful thick, long coats tolerate the cold very well but really suffer in the heat; they may need to be trimmed if they seem to be overhot. On the other hand, very short-coated dogs can’t take ice, snow, or extreme winds, but they cool off quickly in hot weather. If you expect to work a long-coated dog during the summer, make sure it does get that trimming, but be alert to the fact that it simply may not be able to stand the heat very well, trimmed or not. A short-coated dog will need extra bedding and wind protection in its doghouse during the winter months.

Size and coat considerations lead naturally into...

## Temperament

By this I mean three factors: aggressiveness, energy level, and tolerance of stress. Aggressive dogs come in big, medium, and small sizes. But if your goal is a pet for your two-year-old, aggressiveness should be at the bottom of your list of desired traits. Aggressive dogs are confident, assertive, quarrelsome, willing to fight, willing to bite when needed, and tend to be stubborn and harder to train. Unaggressive dogs “just want to get along.” They like everybody and will take a one-down position to even the youngest member of the family. Unaggressive is quite different than “shy,” by the way. A shy dog is actual-



ly an afraid or fearful animal and may be a snappy biter when put in a stressful situation.

With energy-level, dogs are like people: some are real balls of fire, full of pep, ready to run and play at a moment’s notice (terriers fit this description); others are lackadaisical and prefer to turn into couch potatoes (basset hounds enjoy a good snooze). If you’re a ball of fire, make sure your dog is one, too, or the dog will refuse to go out in the rain with you when work needs to be done. And if you’re a low-key kind of person, content to spend all your time in deep thought, a high-energy dog like a dachshund will aggravate you with its constant demands for attention and “walkies.”

Tolerance of stress is a measure of the dog’s capacity to endure change, noise, confusion, and erratic schedules. This trait is as individual in dogs as it is in people. Some breeds seem better able to tolerate stress, but individual dogs within breeds might or might not take it well. If you’re looking at puppies, one way to determine if a dog can tolerate stress is to clap your hands suddenly. Pups that scurry to cover are more sensitive to noise and may be more sensitive to stress than the pup that stops and looks at you to see what’s going on.

## Kids

The presence of children in the household makes a major difference in the types of dogs you’d want around. When our kids were little, the only

dogs we had were Lassie-type collies and collie-crossbreeds. Like TV's Lassie, these dogs are bright, alert, but very tolerant and protective toward "small things." One of our old collie girls even adopted a litter of abandoned kittens, nursing and washing them as well as any cat could have until they were old enough to find new homes.

I've been horrified to speak to people who wanted to get a "kid's dog," but were looking at Chihuahuas. Chi's are small, all right, but they have a snappy temperament and don't tolerate a lot of childish mauling very well. Plus, a Chi at seven pounds could be squashed, unintentionally, by a heavy child sitting down on it.

In general, friendly, even-tempered, medium-sized, sturdy, and medium-coated dogs make the best kid-dogs, and lots of people remember that mixed-breed muttley dog that was their best-friend so many years ago. Mutts often make excellent kid dogs.

If you're planning to keep a dog for work and not as a companion, the kids won't understand—I guarantee it. Hard working dogs, like Border collies, will prefer to herd rather than play anyway, but the kids won't understand that either. A compromise that will satisfy all involved: working dog for the task, pet dog for the kids. The worker stays outside in its kennel when not "at work," the pet sleeps in the kids' room, probably right on their beds. The kids will understand this arrangement.

## Costs and benefits

How much is a good friend worth to you? A friend who would sacrifice his life for yours, one who stays with you through good and bad, who never complains, who only wants to remain at your side no matter where you go or what you do? That's what a pet dog returns over time, all in exchange for a pound of kibble a day and some basic veterinary care.

A working dog, however, can take the place of another human by moving livestock or guarding a portion of your

land. If a working dog saves two or three sheep a year from predators, it has paid for itself. If it keeps bad guys from jumping your fence and making off with your VCR, it has bought all its own dog food for a year. If it swims out to collect your shotgunned ducks, it saves you from cold and damp and helps you keep your eyes on the flying birds.

A purebred registerable dog of any breed, as a pup, will set you back \$300 plus. Spend much less than that and you can be pretty sure it's not from a quality line. A purebred dog that is unregistrable (no papers) will run half or a fourth as much as a papered purebred. No papers may mean there's a little something not purebred in its ancestry—perhaps an unintentional outbreeding—but these dogs resemble pure dogs of their breed and often have the benefit of a little outcrossing to strengthen their health and temperament.

A pup should have had its first shots and been dewormed when you acquire it. It will still need two more routine immunizations and at six months it should have a rabies vaccine. After that, once-a-year boosters should prevent most communicable diseases, and twice-annual dewormings will keep the internal parasites in control. If you don't mind giving your own shots, "5-way" or "6-way" vaccines run about \$3 per dose. In most states, a rabies vaccine needs to be administered by a vet and typically runs \$6 to \$12.

Adult dogs of nearly every breed can be found at animal shelters nationwide. Typically, the cost will be \$50 to \$75, and that will include license, shots, and spaying or neutering.

To spay/neuter is a question that most people don't think much about. We have been convinced by our social controllers that dogs are better off being "fixed." However, somebody's got to breed dogs. It's a topic that is too detailed to cover in this article, but a family that keeps purebred male and female dogs of the same breed, either as pets or workers, and breeds

them once a year, can pay for the dog's food, and then some, from the sale of pups.

If this sounds like an option for you, be especially discriminating in choosing your breeding pair. Get unrelated dogs from different ancestry of the same breed (ask to see the pedigree before purchasing), have them carefully health-screened, learn everything you can about the breed, and plan on keeping these dogs for the long haul. Your dogs can easily last 12 to 15 years, long past their reproductive potential. You might not be able to sell all the pups and wind up with extras to support. If this seems like too much effort, then this probably isn't an option for you.

I would also caution against prematurely spaying or neutering your dog. With a little sensibility, you can prevent unwanted breedings. It isn't uncommon to realize you want puppies out of your dog after it is three or four years old. If the dog's already been fixed, you're out of luck.

## A caution

People often buy a dog to fit an image, a picture of what they think country living is like, or what they think will look good, or a dog that builds their own self-esteem. It's hard to get past these ideas, but sorting out your reasons for having a dog can help counteract the image problem and will provide you with a dog that truly fits your needs, not just your imagination.

There are fine dogs in every breed and among the world of mutts. Your local library probably has an encyclopedia of breeds that describes traits and characteristics. That's a good place to start. A few visits to the local animal shelter will also indicate what breeds and crossbreeds are typical in your area, give you an idea of full-grown sizes for various breeds, and introduce you to some very nice people who volunteer there.

Then, you can know with confidence what the "best" dog for your part of the country will be. Δ



# Ask Jackie

## How much space do vegetables need?

(Jackie Clay invites *BHM* readers to submit questions on any facet of low-tech, self-reliant living. Send questions to *BHM*, P.O. Box 712, Gold Beach, OR 97444. E-mail: jackie@backwoodshome.com)

*Can you give more information on the linear feet (or square foot space) of ground needed for each vegetable? In other words, how much wheat, corn, green beans, etc., in that acre you talk about need to be planted in what space?*

*This would help us plan our long range goal of being self sufficient. We have that acre we could put into garden, but would love some help from you in the layout. Also, do you plant in a single row or use the wide-row method. We have a Troybuilt tiller and can easily go between rows, but if we use single rows it would waste a lot of space. Could you tailor your answer for this planting method?*

**Rich & Mary MacKeen**  
mackeen@excelonline.com

There are lots of different ways of raising the same crops. We range from tractor planting, with very wide spaces between rows, to French intensive methods where just about every inch of the garden is used with beds, not rows, being planted.

Which works best for a self-reliant gardener? All of them, under given circumstances. And I've used them all, at one time or another, from tractor planting five acres of sweet corn for my market garden to tiny raised beds on our first Montana homestead, which was located in a narrow canyon with very limited gardening areas.

If your acre of garden space is a new garden, you'll first have to decide how potentially "weedy" it is. If you have a tough weed problem, such as quack

grass or bindweed in the area, you'll probably want to stay away from wide row plantings or bed plantings as, once you stir up the soil, billions of previously dormant weed seeds will sprout and begin growing, as well as thousands of perennial weed roots chopped (read "divided") and actually increased.

With less weedy areas, wide rows work very well for carrots, beets, peas, onions, greens, broccoli, cabbage, cauliflower, radishes, turnips, and parsnips. I'll include a chart for plantings. Generally I don't like to make my wide beds wider than double the distance I can easily reach across. This way you can easily reach



Jackie Clay

between the plants to weed and harvest. With my short arms this is 3½ feet.

You can group the wide row plantings in the same area, then plant row crops, such as beans and corn, in

### Spacing requirements

Type of vegetable	Wide row spacing	In-row spacing, paths 18 inches
<b>Beets</b>	6 in.	4 to 6 in.
<b>Broccoli</b>	18 in.	18 in.
<b>Cabbage</b>	20 in.	28 in.
<b>Carrots</b>	3 in.	2 in.
<b>Corn, Sweet</b>	12 in.	14 in.
<b>Corn, Flour</b>	20 in.	30 in. best in single row
<b>Cucumber</b>	18 in.	8 in. patches 30 in. apart
<b>Lettuce</b>	9-12 in.	4 in. - 12 in. (head lettuce 12 in.)
<b>Onions</b>	3 in.	3 in. pull to thin for green
<b>Peas</b>	4 in.	best in wide beds
<b>Peppers</b>	18 in.	18-24 in.
<b>Potatoes</b>	18 in.	12 in.
<b>Pumpkin</b>	36 in.	36 in. patches 8 ft. - 12 ft. apart
<b>Radish</b>	3 in.	2 in. interplant in between vacancies to save space
<b>Snap or wax beans (bush)</b>	6 in.	4 in. (best in single rows)
<b>Beans (dry, bush)</b>	6 in.	4 in. (best in single rows)
<b>Beans (pole)</b>	6 in.	4 in. (wide paths, single row)
<b>Spinach</b>	6 in.	6 in. (best in beds)
<b>Summer squash</b>	24 in.	36 in. (wide path between row)
<b>Winter squash</b>	36 in.	36 in. (best in hills 12 ft. apart)
<b>Swiss Chard</b>	8 in.	12 in.
<b>Tomatoes, determinate</b>	24 in.	36 in.
<b>Tomatoes, indeterminate</b>	48 in.	48 in.
<b>Turnips</b>	6 in.	4 in.

long rows in line with each other so you can easily till between the rows. I've found that green beans, wax beans, and dry beans produce more beans that are more easily harvested, when planted in rows at least 18 feet apart, than in wide rows or beds. Planting this way allows the plants to bush out and produce more flowering branches that go on to produce beans.

I'm a fanatic for making use of every inch of my garden, planting wheat where I'm not using an area (which also helps keep down weeds), making successive plantings, and interplanting quick-growing crops between slower growing crops such as watermelon. By the time the watermelon vines are getting big, I've already harvested radishes, early turnips, and lettuce from the otherwise "wasted" space.

As one does not eat pecks of radishes or fresh greens, don't make the mistake of allotting a whole row or bed to them. Instead, plant a pinch here and there in the vacant spaces and, as a new space becomes available in the garden, pop something into it. Don't just let that valuable space go to weeds. Many times you can get enough green beans for many late meals out of that space where you pulled up dry pea vines.

Your garden layout depends a lot on how you'll use your space. Do you plan on growing flour corn for cornmeal? How about hominy? Or potatoes? Corn is a space-hog, but you can tame it by raising a multi-purpose corn. I've often raised a relatively small corn patch, eating as sweet corn the first ears that came in, then canning the smaller second ears that appeared on the stalk. I'd also save a row or two of the smaller second ears to mature and grind for cornmeal, as needed, if the corn in the pantry was getting in low supply.

You don't say how many people you'll be feeding out of your acre garden. But let me say I fed nine people out of my one-acre garden. Much is

possible with creativity. And all of my gardens have supplied produce to can for winter, as well as fresh produce for our table.

Now, for the required number of feet for each crop, I'll tell you what I plant, and let you change it to suit your tastes and needs. (See table.)

In assorted patches are watermelon, muskmelon, summer and winter squash, pumpkin, and radishes. I also plant assorted varieties of Native crops here and there where there is room. I isolate all crops which cross pollinate, as I save most of my own seed. So I don't plant all my beans together in one area, for instance, but place them at different corners of the garden.

*I noticed in your article in the Mar/April 2000 "Jackie's tips for hard core homesteading," you mentioned making lye by seeping water down through wood ashes. I love soap-making and always have to make that trip into town to buy lye. If it is possible to make it at home, I would love to learn how. Would you please write some instructions for me?*

**Erin Harrison  
Conroe, TX**

In the old days lye was made by collecting hardwood ashes in an oaken barrel (about 20 to 30-gallon size), which had small holes bored in the bottom so it was *not* water-tight. Over these ashes enough water was poured to moisten the ashes, and the ash-leached water, which contains the lye, was allowed to drip into a bowl. When making your own lye this way, use glass or pottery, never aluminum, to catch and hold the lye. Aluminum will react with the lye.

Making good lye for soap is more of an art than making good soap itself. This is why most folks (me included) make that trip to the store and buy lye of consistent strength. Homemade lye can be too weak or too strong, and result in soap-making failures. It is fun to give it a try, though.

#### FEET REQUIRED PER VEGETABLE

16 100-ft. rows of sweet corn (1 plant four rows of early, the rest mid-season for canning and eating fresh.  
10 100-ft. rows of Cherokee White or other corn for meal and hominy.  
4 50-ft. rows yellow wax beans  
4 50-ft. rows bush Romano beans  
4 50-ft. rows Native American variety of dry bean  
4 50-ft. rows King of Early dry bean  
2 100-ft. rows pinto bean  
2 20-ft. by 4-ft. beds of peas  
1 20-ft. by 4-ft. bed of spinach  
2 separate tomato patches of 50 ft. by 50 ft.  
2 25-ft. rows peppers (chili & sweet)  
1 wheat patch 50 ft. by 50 ft.  
1 10-ft. row parsnips  
4 25-ft. rows carrots or 1 25-ft. by 3½ -ft. wide row  
1 25-ft. row turnips or rutabagas  
1 25-ft. by 3½-ft. bed of broccoli  
1 25-ft. row cauliflower  
1 25-ft. row cabbage (mixed early and late)  
2 25-ft. rows cucumber (trellised)  
4 50-ft. rows onions or 50-ft. wide bed gives green and storage  
1 25-ft. row pole snap beans  
6 100-ft. rows potatoes

You will use the same amount of lye in the soap-making, whether home-made or store-bought.

*I read with interest Jackie Clay's article in the March/April 1999 issue. She mentioned an open pollinated squash called the Hopi Pale Grey. I have searched seed catalogues and the web for this squash and cannot find it. I tried the Reader's Forum at your website ([www.backwoodshome.com](http://www.backwoodshome.com)) but no one could help me.*

*I was wondering if she could provide me with the source of the company or person she got this seed from?*

*Has she written a book?*

**Mark Gotberg  
Riverton, UT  
[mark\\_gotberg@byu.edu](mailto:mark_gotberg@byu.edu)**

Sure, I can give you a source for Hopi Pale Grey squash. You can buy seed from Abundant Life Seed Foundation, P.O. Box 772, Port Townsend, WA 98368. I received my first seeds through a friend several years ago and have grown them ever since. We'll see how they do here in our new homestead up in the mountains not too near Wolf Creek, Montana. My guess is that they'll do well everywhere. I have never grown a better tasting, longer keeping, or more productive squash.

Hopi Pale Greys like manure, as do most larger squash. I dig a 3-foot-square hole 18 inches deep, add 6 inches of composted manure, add 6 inches more of good garden soil, add 5 seeds, well spread out, then cover with another inch of fine garden soil. Add water and stand back.

No, I haven't written a book on gardening or self-reliant living yet. Publishers don't seem interested. But I just finished revising A Veterinary Guide for Animal Owners for Rodale Press, and writing two *Country Wisdom Bulletins* for Storey/Garden Way on *Building Fencing For Horses* and *Building and Rebuilding Horse Shelters*.

*I am planning to move my chicken house out of the pen where I have kept them (25 hens) for the last year. The area is about 30 by 30 and I plan to plant my garden there this year. The*

*ground has no grass anymore and I want to put the hens on fresh grass. Would the ground where the pen is now be too hot due to all the droppings from the last year or would it be a good place for the garden? I plan on tilling it up pretty good and getting it all turned over.*

**Tim Barrett**  
**Barrett3252@webtv.net**

Sure, go ahead and till up your old chicken yard. I've done that many times with excellent results. In fact, it's a great idea to build a chicken coop smack in between two fenced areas and rotate the chickens and garden between them. (See John Silveira's article, *Save time and energy with the chicken coop/garden*, in Issue No. 44—March/April 1997.) The chickens benefit from new, clean soil, vegetable leavings, weed seeds, and insects; the garden benefits from all that chicken manure and the weeds/seeds the flock picks up.

I'd till the ground just as early as the soil can be worked this spring to give the manure a chance to rot well before

you plant. If your area is dry, soak the tilled area well, then keep it fairly moist (not wet) for a couple of weeks. Do let it dry out between waterings. Moist, well-tilled ground will allow the manure to compost better than if the soil is dust-dry.

Then about a week before you plan on planting, till it again. You'll notice a great improvement in the appearance of the soil. Another tip is to add about six inches of organic material on top of the yard before you till. Leaves, weed-free straw, or even pine needles are my favorites. Chicken manure is very high in nitrogen and with the extra organic material you will be building the best organic soil you can imagine. I did this and in a year's time the soil was black, fluffy, and full of earthworms. I could flip a stick into the ground and gather a whole can of worms to go fishing with. Δ



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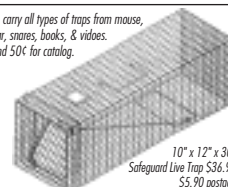
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# ENERGY WORKS

Hello. And welcome to the EnergyWorks section of *Backwoods Home Magazine*.

My name is Michael Hackleman. I am the new Energy Editor for *BHM* and I will host this section. It will cater to people who want to move to the country, have fresh running water, build their own house, grow their own food, and make their own electricity.

I chose my land in the Sierras below Yosemite National Park along strict guidelines to ensure that I could become as self-reliant as possible. And because alternative energy was a fledgling subject at the time, I applied what I knew and experimented a lot. Things broke, blew up, plain failed to work, fell over, popped, melted, caught fire, short-circuited, and sometimes worked. I wrote about my experiences and those of others with whom I had come in contact. I've written seven books for the do-it-yourselfer on these topics.

What qualifies me to do this job—editing an energy section in a magazine? I'm not sure. (No one else wanted the job?) Actually, I've been actively involved in solar, wind, water, methane, and wood energy applications and electric vehicles since 1972. I don't think of it as a career so much as a passion. (The first pays, the second pleases.) At one time, I studied to be a nuclear engineer. Who was it that said, "God showed us how to do nuclear energy: It's fusion (instead of fission) and it's located 93 million miles away from living things." (Our sun.) This concept grabbed my interest. And after nearly three decades, it has sustained my interest.

I'm not a scientist, engineer, or graduate. I have no degrees. I don't



Michael Hackleman

think of myself as a pioneer even though I've done this work for more than a quarter of a century. I don't consider myself an environmentalist, either. I'd say I'm an energist (my term). I align myself with the thinking of Henry Ford, who believed that engines should burn alcohol because a farmer should never have to rely upon an outside source of fuel to run farm equipment. I believe anyone becomes more self-reliant when one learns how to harvest the energy all around us.

My mentors were Farrington Daniels, C.G. Abbott, D.S. Halacy, and Steve Baer. Nowadays, there are new and younger mentors and a wealth of information available on any topic you can name.

What can I offer you in this section? Good exam-

The MREF energy building is a permanent fixture in Amherst, Wisconsin.

ples in applying what has become off-the-shelf technology. Honesty and substance, breadth and depth. Mostly, stories about people who have taken steps in any of these directions. EnergyWorks is here to serve you. Are you going to write and tell me what you want to see, or do I have to guess? I'd prefer that you wrote or emailed me. Better yet, send me a story or a story idea, put it to my attention, c/o *Backwoods Home Magazine*, P.O. Box 712, Gold Beach, OR 97444.

Many folks I've met over the years believe themselves to be idiots, incapable of knowing the business end of most tools, much less becoming energy self-reliant. My experiences suggest the opposite. We are all capable of getting there, though we may arrive by different paths. At the same







A VW rabbit is converted from a gas engine to electric propulsion during the SolWest fair in John Day, Oregon in 1999.

time, there's tanstaafl. That is, there ain't no such thing as a free lunch. Still, the more you know, the less you pay. I hope to give you pieces that will fit the puzzle of your own dream.

## This issue

We begin EnergyWorks with two great articles. First, Stephen Heckerth takes us on a tour of four projects in *Solar Building Design*. If I was asked to point to one site that best represents the way that design, engineering, functionality, and aesthetics may be blended together to harness, store, and conserve natural energy into a vital living and working environment, I would point at Stephen's own homestead. Incidentally, each of his projects will be re-visited in detail, beginning with next issue.

In *Solar Water Pumping Basics*, Windy Dankoff offers compelling reasons to use solar energy for a variety of applications, and he provides a checklist that will help you assess your own pumping needs.

## Energy fairs

There's nothing like "hands-on" to move you along the path of using natural energy sources. The Midwest

Renewable Energy Fair (MREF), in Amherst, Wisconsin, offers hundreds of workshops and booths representing the knowledge, experience, and hardware of this technology. MREF's success has fostered additional fairs around the country. I encourage you to check this out. I've listed the names, dates, and locations (see sidebar).

## Coming up

Next issue I will begin Energy 101. Irrespective of the topic, Energy 101 will be about basics. I don't like to use terms like volts, amps, kWh, PV, solar-thermal, insulation, and thermal mass without ensuring that you understand what they mean. Let's make a deal. I won't assume that you have a technical background and you won't assume that you can't understand this material. Okay?

See you next issue!

(Michael Hackleman, P.O. Box 327, Willits, CA 95490. e-mail: [mhackleman@saber.net](mailto:mhackleman@saber.net)) Δ

## Energy Fairs

**June 16-18: Midwest Renewable Energy Fair**

**Location:** Madison, Wisconsin  
**Address:** MREA, 7558 Deer Rd, Custer, WI 54423

**Contact:** Katy Matthai  
**Phone:** 715-592-6595  
**E-mail:** [mreainfo@wi-net.com](mailto:mreainfo@wi-net.com)  
**Website:** <http://www.the-mrea.org>

**July 29-30: SolWest**

**Address:** EO Renew, P.O. Box 485, John Day, OR 97820  
**Contact:** Jennifer Barker  
**Phone:** 541-575-3633  
**E-mail:** [solwest@eoni.com](mailto:solwest@eoni.com)  
**Website:** <http://www.eoni.com/~solwest>

**Sept 16-17: Southwest Renewable Energy Fair**

**Address:** GFEC, 1300 Milton Rd, Ste 125, Flagstaff, AZ 86001  
**Contact:** Kim Poirier  
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# Solar Building Design

A practical review of four projects

**By Stephen Heckeroth**

**S**olar building design has been used since ancient times. In the more recent past, it has been more or less ignored as impractical, complicated, or too expensive. Incorporating the sun's energy into the design of the built environment, however, is practical, simple, and affordable.

Ancient civilizations knew that orientation to the sun was an important factor in the layout of their cities and homes. As the knowledge and technology of using solar, wind, and water sources evolves, owner-builders and building professionals alike will have a greater opportunity to incorporate energy-conserving strategies into any project.

## Introduction:

Following are four projects designed by the author that illustrate passive solar design strategies, introduce a new building-integrated photovoltaic roofing material, and show how integrating energy systems lowers overall cost. Examples include:

- An award-winning passive solar home on the northern California coast that offers all the comforts of modern living but uses only solar energy for heating and the prevailing wind for cooling.
- A five-story solar-heated tower house nestled in the redwoods with a roof-top, solar-heated hot tub.

- A barn roof with an integrated three kilowatt photovoltaic (PV) array that satisfies the energy needs of a single family home and loft apartment on a five-acre ridge-top homestead.

- A 2,000-square-foot house that combines the use of passive solar design with thermal collectors to satisfy heating needs and a roof-integrated PV system for electricity generation.

## Caspar Point house

The 3,000-square-foot Caspar Point home is located in northern California on a rugged point of land jutting out into the Pacific. It incorporates southern exposure, sun spaces, thermal mass, insulating envelope, earth coupling, and thermosiphon solar-heated water for domestic hot water and radiant floors. The solar heating strategies have maintained comfortable indoor temperatures in an extremely harsh climate without the use of fuel since the home was completed in 1991.

The indoor temperature has been maintained above 65 degrees Fahrenheit in this relatively cool location. Opening windows and ventilation tunnels protect the house from overheating. The electricity needs are about 1/10th that of a conventional home. This is accomplished by using energy efficient appliances and fixtures along with solar strategies. The \$93 per-square-foot construction cost was \$30 less per square foot compared to other custom homes in the area.

The Heckeroth homestead has been the proving ground for many of the author's designs.





The Caspar Point house is unique in that it uses no fuel for space heating or cooling throughout the year.

## Orientation

Buildings incorporating passive solar design rely on the sun, wind, and the earth to maintain comfortable indoor temperatures. Proper orientation accounts for more than 80% of the success of passive solar design. The prevailing wind should be used for cooling and ventilation. Earth berms can protect the house from cold winds.

The Caspar Point house is built into the earth on the north and west sides to protect it from the prevailing wind. The berms also increase the depth of the house's connection with the earth to take advantage of the more constant below-grade temperatures. Two stories of glazing open the house to the south for solar gain and a view of the ocean. The exposed greenhouse acts as a heater where tomatoes thrive through the year.

The sun enters the building through the greenhouse entry, a sunspace off of each bedroom, and large view windows in the main living spaces. Overhangs are sized to shade the windows in the summertime while letting the sun's rays fully penetrate in the winter, ensuring maximum direct gain in thermal storage walls and concrete floors.

## Thermal mass and insulating envelope

Thermal mass within a building regulates interior temperatures. The mass absorbs heat on sunny days and prevents overheating. At night, the stored heat is radiated into the building. The thermal mass at Caspar Point consists of 100 yards of structural concrete. The insulating envelope extends to below grade on exterior walls to integrate the foundation's structural function with its ability to store heat. At Caspar the slab is insulated from the earth with R-11 insulation, the exterior walls are wrapped with R-19 insulation, and R-30 was used in the ceilings to create an insulating envelope.

## Solar heating

Flat plate solar collectors mounted on south elevations can be used to provide solar heated liquid for space and domestic water heating. Two large flat plate collectors are integrated into the south-facing roof above the stairwell. The heated liquid thermosiphons into a tank. The heat stored in the tank is then pumped through pipes embedded in the slab floor to place the heat where it does the most good. A heat exchanger in the solar tank is used to provide domestic hot water.

## A tower house

The Sterling-Norris tower house, located four miles inland on a ridge just south of Albion, CA., responds to the redwoods that surround

This tower house takes full advantage of winter sun.

Shading keeps out the summer sun. Venting the hot air helps pull in cooler air.

it by reaching for the sky. The passive solar design concepts used in the Caspar Point house are repeated but adapted to a different setting by orienting the building vertically. The sun is the only energy source necessary to heat the five-story tower in the winter. Overhangs prevent overheating by the high summer sun. The house works as a cooling tower when windows are opened by venting hot air out of a hatch on the roof deck. This pulls cool air into the lower floors.

## Solar gain

The south side is open to the sun with an attached greenhouse on the lowest level and large windows that let in the winter sun but are shaded from the high summer sun. Photovoltaic (PV) panels are mounted above flat plate collectors on either side of the sun space/greenhouse to run pumps which distribute heated liquid through radiant floor pipes embedded in the floor slab. Heated air rises naturally through the house, controlled by the opening and closing of doors at various levels.

Flat plate collectors are also installed on the shed roof over the



south-facing 4th and 5th floor windows. These roof-integrated panels heat water for domestic use and a hot tub built into the roof deck.

The first floor is buried to take advantage of the earth's more constant temperature. The walls were wrapped with R-19 rigid insulation above and below grade, and R-11 insulation was used underneath the slab in order to prevent the heat stored in the thermal mass from escaping to the outside.

### Resource efficiency

The top soil excavated from the building site was spread on the surrounding gardens to enrich the soil. Runoff from the roof is collected in a reflecting pond immediately south of the house. The pond is used to irrigate terrace gardens further down the south slope.

The foundation was designed to form retaining walls instead of burying the required 50 yards of concrete underneath the house. As a result, the structural concrete serves the multiple functions of foundation, thermal mass, and earth connection. With the addition of a skylight, it further provides 300 square feet of comfortable living space at almost no extra cost.

The house was framed and trimmed with resawn, recycled redwood timbers salvaged from a local mill. The 2 x 6-foot T&G fir flooring used throughout the house is supported by exposed redwood beams and also serves as the ceiling of the floor below.

Like the Caspar Point house, energy efficient appliances and fixtures help lower the overall energy consumption. Full-spectrum capsule fluorescent lights are used, requiring one quarter of the energy of incandescent lightbulbs. Low-flow plumbing fixtures were installed to

reduce water usage. Many of the Mendocino water towers this home imitates have survived over 100 years on less substantial foundations. This home should last at least as long.

### Energy savings

The solar strategies added only minor costs to this custom home but resulted in substantial energy cost savings over the life of the building. The utility bill averages \$20 per month which is about one-fifth that of the average 2,500-square-foot home. Free solar space heating and cooling and water heating account for over 50% of energy savings. Good insulation and efficient appliances further add to the energy savings. The construction cost was \$84 per square foot which is 30% below the \$125 per square foot which is typical for custom homes in the area.

### A barn re-roofing

The replacement of a south-facing leaking metal roof with photovoltaic panels turned an old barn roof into a power generator for the author's homestead located three miles inland from the Pacific Coast in Albion, CA. Using solar panels over the roof framing saves the cost of roofing and a mounting structure that would be necessary to support the panels. Skylights were also integrated into the new roof to provide daylighting, and a flat plate collector was added to supply domestic hot water to a barn loft apartment.



### Power generation

The 700 square feet of thin-film amorphous laminated-glass panels produce a steady 3 kW for 7 to 8 hours in the summer and an average of 1.5 kW for 4 to 5 hours in the winter. This is enough energy to run all the appliances in the house and loft apartment year around, and charge an electric car and an electric tractor on sunny days. Thin-film amorphous silicon panels are 6-10% efficient in their conversion of sunlight to electricity, compared to 10-14% of crystalline panels. But amorphous panels have the advantage of performing well in high-temperature and shaded conditions. The roof, including the 4 kW synchronous Trace inverter and battery pack, cost \$15,000 and will pay for itself in 10-15 years.



**Above:** A shed dormer transforms the loft apartment into a warm and sunny place.

**Left:** Author replaces an old roof with dormers, PV modules, solar water-heating panels, and skylights. The finished roof is revealed in the opening photo of this article, and on the cover of this issue.



## Embodied energy

The thin-film amorphous panels can recuperate the energy it took to manufacture them in six months of use as compared to up to 3-5 years for crystalline panels. Thin-film technology uses 300 times less silicon feedstock and produces virtually no waste compared with cutting crystalline cells. Embodied energy is also saved with a roof of multiple functions: shelter, power generation, water heating, and daylighting.

## A PV roof house

The McMillan residence is a 2,000-square-foot, three-bedroom home that shows how solar strategies can be incorporated into a traditional design. The home is located three miles inland on a sunny plateau just south of the town of Mendocino, CA. The main glazing on the building is oriented south for solar gain. Flat plate collectors provide heated liquid for domestic hot water and radiant floors. An integrated PV roof makes electricity.

## Solar gain

Arbors and overhangs protect the south facing glazing from the high summer sun while exposing the tile floors to the low winter sun.

Flat plate collectors are mounted on the south wall between windows and doors. By mounting these solar collectors vertically, twice as much heat is generated in the winter when it's needed as in the summer when overheating can be a problem. The heated liquid is stored in solar tanks in the attic and circulated through hydronic heating pipes embedded in the floor slab. A

UniSolar modules form part of the roof of this 2,000-square-foot home.



coil of pipe located in the solar tank acts as a heat exchanger to provide domestic hot water.

## Integrated PV roofing

A 2-kW PV array bonded to architectural standing-seam metal roofing is the first of its kind on a single-family residence. The array, made by Uni-Solar of Troy, MI, was installed in three hours. This equals the time it would have taken to install regular standing-seam metal roofing. The flexible PV material is bonded to metal panels 16 inches wide and 18-20 feet long. Each panel requires only two electrical connections, easily accessible under the ridge cap. Each panel generates 128 watts of power. The installation involves just one roof penetration under the ridge cap. It channels the wires to a combiner box near the batteries and inverter. Here the 24Vdc power is inverted to 110Vac.

## Cost savings

The PV roof costs \$5.50 per watt which is approximately equal to the cost of a non roof-integrated PV panel in need of a mounting structure or tracker. Orienting the PV roof to the south is the only requirement for efficient operation. The value of energy production over the 50-year life expectancy of the roof more than justifies the initial cost which will be recuperated in 10-15 years of use.

Flat plate collectors used as siding not only avoid the cost of the siding they replace but also save the expense



Plastic tubing embedded in concrete insulated from the ground makes for a warm floor in winter.

in material needed to build a supporting structure. They also add insulation to the wall. While it is relatively expensive to buy new flat plate collectors, the initial cost is quickly recuperated. When compared to electric water and space heating, the initial cost can be recovered in as little as three years. After that, hot water and warm floors are almost free.

## Conclusion

In the past, solar components were regarded as unconventional and visually displeasing additions to buildings. When solar components are integrated into the skin of a building, they eliminate the need for the material they replace and blend in with the structure. New solar materials can enhance the aesthetics of both traditional and contemporary structures while providing a clean and self-reliant energy supply.

These four projects show that the technologies available to gather and conserve energy do not add significantly to initial expense but do lower the long-term cost.

(Stephen Heckerroth, 30151 Navarro Ridge Road, Albion, CA 95410. Phone: 707-937-0338; e-mail: [steve@renewables.com](mailto:steve@renewables.com); Website: [www.renewables.com](http://www.renewables.com)) Δ

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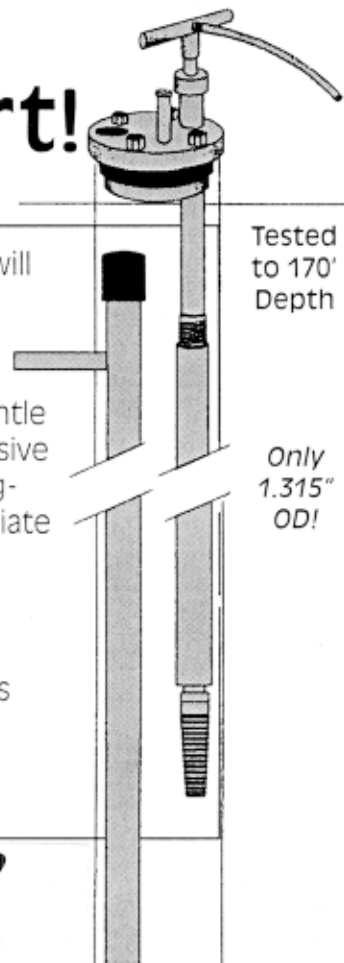
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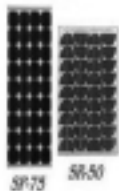
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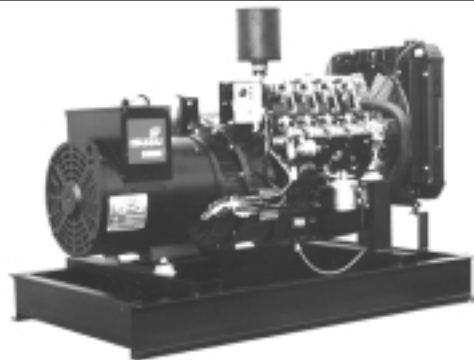
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# SOLAR WATER PUMPING BASICS

By Windy Dankoff

**T**here are major reasons to consider the use of solar-powered pumps. Solar pumps require no fuel. They are quiet, pollution-free, and require very little maintenance. They produce best during dry sunny weather when the need for water is greatest.

## How it works

Solar water pumps are specially designed to use photovoltaic-generated power efficiently. Photovoltaic, or PV, cells are solar cells that convert the sun's energy directly into a DC current at a DC voltage. DC is direct current, like the power one gets from a battery. PV cells are grouped together into modules that provide a convenient voltage, i.e., 12Vdc. PV modules are tough, all-weather panels that will withstand extreme temperatures (cold or hot), precipitation (including hail), and unattended operation.

PV modules are available in a variety of shapes, sizes, and wattages. They are modular in nature, meaning each PV module may be grouped with other PV modules in racks to build arrays that may be wired in series or parallel to any desired voltage, current, or overall power requirement. This characteristic makes it very easy to increase the capacity of a system. Just add more.

Conventional pumps require the steady AC voltage that utility lines or generators supply. Solar pumps utilize DC electric power from the sun directly. The intensity of the sunshine may vary daily (dawn to dusk), sea-

sonally (summer to winter), and intermittently (clouds and fog). Nevertheless, PV-powered pumping systems work effectively during low light conditions at reduced voltage without stalling or overheating the pump.

## The hardware

Many solar pumping systems use a **positive-displacement pump**. It seals water in cavities and forces it upward. This type of pump will maintain its lift capacity even while pumping at a slow rate. This differs from a conventional **centrifugal pump** that needs to spin fast to work efficiently. Positive-displacement pumps include diaphragm, vane, piston, and jack pump types. Centrifugal pumps are used where higher volume is required.

A **surface pump** is one that is mounted at ground level. A submersible pump is one that is lowered into the water. Most deep wells require submersible pumps. The development of solar submersibles is an ongoing process.

A **controller** or **current booster** is an electronic device used with most solar pumps. It acts like an automatic transmission, helping the pump to start and not stall in weak sunlight.

A **solar tracker** tilts the PV array automatically to face the sun as it moves through the sky. This increases daily energy gain by as much as 55% over the same number of modules used in a fixed, south-facing array. With more hours of peak sun available, a smaller pump and power system will prove effective, thus reduc-



The well under this dead windmill has been brought back to life by a solar submersible pump powered by a 120-watt array.

(Photo by Zuni Conservation Project)

ing overall cost. Two types of trackers are available: passive (fluid-driven) and active (electric). Tracking works best in clear sunny weather. It is less economical to use in cloudy climates.

Storage of water or energy is important to solar pumping. Three to



ten days' **water storage** may be required, depending on climate and pattern of water usage. On sunny days, the system pumps more than the daily requirement in order to fill the system's water tank. **Storage batteries** may be used to store energy for pumping during night time and cloudy periods. However, for simplicity's sake, most systems use water storage rather than batteries.

The cost of solar pump systems ranges from under \$1000 to tens of thousands, depending on water requirements, vertical lift, and climate. Even the smallest systems can lift water from depths exceeding 200 feet at low volumes. You may be surprised by the performance of a 1-gallon-per-minute pump. In one sunny day (10 hours), it can lift 600 gallons. That's enough water to supply several families, or 30 head of cattle, or 40 fruit trees.

Compared with windmills, solar pumps are less expensive and much easier and safer to install and maintain. They provide a more consistent supply of water, especially in critically dry times when there is plenty of sun but little wind. As well, solar pumps can be installed in valleys, canyons, and wooded areas where wind exposure is poor.

A photovoltaic array need not be placed close to the water source. To gain full exposure to sunlight, it may be placed some distance away from the pump itself, even hundreds of feet providing the electrical wire is sized properly.

Solar pumps can operate automatically. Level sensors are available to turn the pump off when the water tank fills, thus stopping wasteful overflow. Similar controls may be used to turn the pump off if the water source is drawn down too far.

Solar pumps are expandable. A pump may be installed with a half-sized PV array, and it will deliver half-volume. Later, when more money is available or water require-

ments increase, the system may be expanded to full capacity.

In an emergency, some solar pumps may be back-up powered by an engine, a generator, or batteries. Small solar pumps may even be powered by the battery in a vehicle.

Small solar pumps are compact, thus minimizing freight and transportation costs. They may even be portable, allowing them to be moved from one water source to another. Small, lightweight systems reduce the need for special equipment and skills at the site.

Low volume solar pumps offer unique benefits. They allow use of slow water seeps and marginal wells, even those producing less than ½ gallon per minute. Slow pumping reduces the cost of long pipelines, since small, inexpensive pipe may be used.

## Pump applications

**Livestock watering:** Cattle ranchers in North America, Mexico and Australia are among the most enthusiastic solar pump users. Their water sources are scattered over many miles of rangeland where power lines are few and refueling and maintenance costs are high.

Ranchers make use of marginal land by using solar pumps to lift from wells hundreds of feet deep and to push water through pipelines that may be several miles long. Ranchers

who rotate pastures to protect their rangeland may move their pumps from one well to another quickly and easily.

**Irrigation:** Solar pumps are used in small farms, orchards, vineyards, and gardens. It is most economical to pump solar-direct (without battery), store water in a tank, and distribute it by gravity flow. If water is to be pressurized by a solar pump, storage batteries stabilize the voltage for consistent flow and distribution, and many eliminate the need for a storage tank. Solar pumping is most economical when combined with water conservation techniques, such as drip irrigation and night-time distribution, to reduce evaporation losses.

**Domestic water:** PV systems have been installed in tens of thousands of remote-site homes to power lights, tools, and appliances. Energy is stored in deep-cycle batteries for use at night and during cloudy weather. A water pump may be part of a home power system, like any other appliance.

A PV-powered home may use a DC pump made for solar power, or a conventional AC pump powered by the home's DC-to-AC inverter. Some systems use an elevated storage tank and some use a second pump called a booster pump to pressurize the water. Some use the home's battery system for storage instead of storing water in a tank. A variety of factors are considered in determining the optimum approach for each situation. A designer of PV home systems can help you determine the best way to meet your needs.

The easiest way to minimize the cost of solar pumping is by conservation of water. By using one-gallon flush toilets, a home's total water consumption may be reduced by half. Energy may be further conserved by installing household plumbing using pipe one size larger than minimum, so that lower water pressure may be used without loss of flow.



A 300-watt solar array powers a piston-type solar submersible pump located 550 feet deep in a nearby well.

Landscaping and gardens should be designed to minimize water use.

## Economics

A small solar pumping system providing a few thousand gallons per day or less, often costs less initially than an engine-powered system. Most larger solar pumps will cost more initially than fuel-powered systems, but they tend to be far more economical in the long run.

Determining the life-cycle cost of a fuel-powered pump requires predicting the future costs of fuel, transportation, maintenance costs, etc. as well as monetary factors of inflation, exchange rates, etc. A solar pump minimizes future costs and uncertainties. The fuel is free. Moving parts are as few as one. With a few spare parts, you can depend on years of reliable water supply with complete autonomy.

If a solar pump costs you less than twice the initial cost of a good fuel-powered system, it is certain to be the economical choice. If the pumping location is very remote, or if fuel delivery, quality of maintenance, and availability of parts and funds are uncertain, then a solar pump may be economical even at five times the initial cost of engine power.

Many of the materials being developed for PV panels do not have the proven durability of today's crystalline silicon technology. Also, some technologies are less efficient, thus requiring greater surface area to catch the sun.

The best PV panels are costly, but have proven themselves for decades. Since 1980, price reductions have been substantial, but gradual. It does not pay to wait. So, if supplying water is costly now, it is time to consider solar pumping.

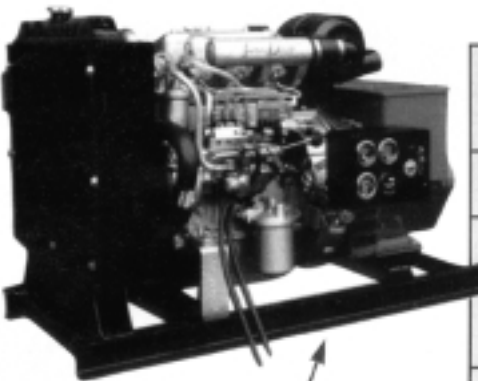
(Windy Dankoff owns Dankoff Solar Products, 2810 Industrial Road, Santa Fe, NM 87505-3120. Phone: 505-473-3800; toll free: 888-396-6611; e-mail: pumps@dankoffsolar.com) Δ

## HOW TO CHOOSE A SOLAR PUMP SYSTEM

Choosing a pumping system is like ordering a suit of clothes. When talking with a supplier, know the following:

- Well depth or description of water source
- Depth to water surface: Does level vary? If so, how much?
- Yield of well estimated in gallons (or liters) per minute
- Total vertical lift from water surface to storage tank or pipe outlet
- Size of well casing (inside diameter)
- Water requirements in gallons per day according to season
- Will other sources of water be available?
- Application for water: Home? Livestock? Irrigation?
- Describe any existing system at the site
- Quality of water: Is it clear, silty or mineralized?
- Is pressure required for home or for sprinkler irrigation?
- Can a storage tank be easily located higher than the point of use?
- Will the pump be located near a home/battery system? Distance?
- Elevation above sea level (to determine suction limitations)
- Geographical location of system, plus any solar data available
- Solar access: Is unobstructed sunlight available near water source? If not, how far away, or how many hours of clear sun are available?
- Complex terrain? Include a map or diagram.

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# Facts you should know about rattlesnakes

By Marjorie Burris

**'N**ow I know we live in the garden of Eden; we've got the snakes to prove it," Husband said ruefully one hot July afternoon after contending with three rattlers, all in our house yard.

We do have the perfect setting for rattlers. At 6200 feet elevation, surrounded by a ponderosa pine forest, with rocky cliffs jutting up all around us and a spring that flows continuously supplying water to a pond and numerous irrigation ditches, we have learned to keep a watchful eye not only out-of-doors, but in buildings as well.

We have the black timber rattlers that are usually only about three-foot long. We have the big diamond back rattler that can be as big as two inches around and four feet long. We have the huge, often longer than five feet, green Mojave rattler with its poisonous venom that has two kinds of actions on the victim. We also see little red colored snakes about six or seven inches long which we think are baby rattlers, but could be a different species of snake. We aren't sure.

I hate them all. I'm deathly afraid of snakes. When I come upon a rattler, I yell. Not a little wimpy "yipes," but a gut wrenching, from the depths of terror, worthy of the name Comanche, yell. My family laughs. They insist I can scare a snake to death by yelling at it.

After last summer, which was a particularly snakey year, I decided maybe

I wouldn't be so afraid of rattlers if I knew more about them. I called the herpetology lab at Arizona State University and, after listening patiently to my situation, the professor invited me over to the lab for a one-on-one seminar on snakes. Without a hint of a snigger at my fear, he spent an entire hour answering questions and giving pointers. Then he loaned me a copy of the classic tome he used in his classes and told me when I had studied and returned it, he would answer any other questions I had. I studied hard, I learned a lot, I still yell when I see a rattler, but here are some of the things I learned.

## Do snakes hibernate?

Snakes do not hibernate, technically. It sounds like nit-picking, but the difference between hibernation and how cold-blooded creatures react to temperature makes a big difference in when and where you might expect to come upon a rattler.

Hibernation is done by warm-blooded mammals. Hibernate comes from the Latin word "hibernatus" which means winter; the verb form of the word means "to pass the winter."

True hibernation is not sleeping. When an animal hibernates, it goes into an almost comatose-like state and just barely stays alive. The breathing becomes very slow, the heart beat becomes slow and irregular, and the body becomes cooler and cooler until it is only a little bit warmer than the air in the den. Although a hibernating

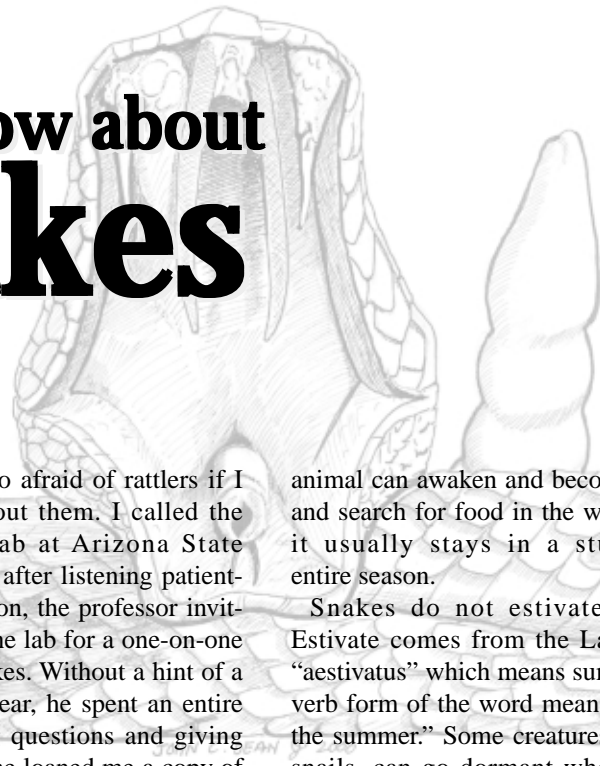
animal can awaken and become active and search for food in the wintertime, it usually stays in a stupor the entire season.

Snakes do not estivate, either. Estivate comes from the Latin word "aestivatus" which means summer; the verb form of the word means "to pass the summer." Some creatures, such as snails, can go dormant when it gets hot and dry.

Snakes, because they have no mechanism to regulate their body temperature from within, seek a place that will warm or cool them from without. That's why, in the winter, you might see a snake on a sun-warmed rock, or in the summer you might find a snake in the coolness under a fallen log. Usually, as cold weather approaches, rattlers will congregate in hollow logs, caves, or dens under the ground and wind into a mass where they remain somewhat inactive until warm weather. Notice I said "warm weather," which is not necessarily spring or summer, but can be warm weather in the fall or winter, too.

The professor warned me: "Remember, snakes will be the most active when the temperature is comfortable for you, but that doesn't mean that they can't be out at other times, either." Snakes may not move so quickly in the cold or heat, but not being in a state of true hibernation or estivation, they can move.

In fact, the only time any of our family has been bitten was on a very cold night in late November. On warm



nights our family routinely opens the truck door and searches the ground with a flashlight before stepping out. But this night our son, Duane, stopped to open a gate, and because it was well below freezing, he didn't bother to check the ground and he stepped out directly on a large rattler coiled up in the middle of the road. He felt the snake slide out from under his foot and then he felt it strike against his boot at the ankle. He drove back to the house and we pulled off his boot and were greatly relieved to find that the fangs had indeed pierced the leather, but they made only two shallow scratches in his skin. We cleaned the scratches with antiseptic and they healed without complications. We think the snake was probably too cold to hit with enough force to penetrate deeper.

## No eyelids, no ears

Some facts about rattlers: Snakes never close their eyes because they have no eyelids. A tough, transparent cap protects the eyes. Because they stare so fixedly, people used to think that snakes could hypnotize other animals, but the professor assured me that is not so.

Snakes have no ear openings, so they are deaf to sound waves traveling through the air, but they get vibrations from any solid object they touch. "There!" I told my family, "I don't scare a snake with my yell; it can't hear." "No," they answer, "Your sound waves hit the ground with such force it hurts the snake." Oh.

## Super smellers

A rattler's sense of smell is well developed partly because of its forked tongue. As it flickers in and out of the mouth, the tip picks up traces of chemicals in the air. The tongue then carries the chemicals in solution to organs in the roof of the mouth, which is lined with sensory cells. A sensation is produced similar to smell or taste. This helps the snake locate food or a mate. The tongue is not a weapon for

stinging or for injecting poison. The poison is only injected through the two fangs with an action like a hypodermic syringe and needle.

## What about the rattles?

A common myth is that rattlesnakes always give their distinctive warning before they strike. This is definitely not true; don't depend upon hearing a rattlesnake before you see it. Watch as well as listen when out in rattlesnake country.

The rattles on a snake are formed of hard cup-shaped rings fitting loosely into one another. When the snake becomes excited its sensitive tail vibrates and the rings strike together making a dry, sharp whirring noise that may be heard as far as 20 yards away. Young snakes have only a blunt tip at the end of the tail, and when the snake molts or sheds its skin this tip is retained and forms the first ring of the rattle. A new ring is added each time the skin is shed, which is usually about three times a year. The small snake cannot make a rattling noise until it has grown enough rings to strike together.

I once stepped into the barn and heard a strange, soft whirring, which

When disturbed at close range, big rattlers may strike reflexively without taking time to rattle. A rattlesnake does not have to coil to strike, either. It strikes by throwing its neck into an S-shaped loop, then straightening out the S. A snake can strike about two thirds the length of its body, and it can propel itself from a rock or a log making a strike from an even further distance. Keep back!

## Do they travel in pairs?

This may not always be the case, but it happens often enough to cause you to be especially wary when you come upon a snake. Several times we have seen two snakes crawling along together. Once they were side by side, but the other times they were following one another. And when we have encountered a solitary snake in the yard, more often than not within a day or two we will spot another close by, if not in the same place as the first. Usually we know it is not the same snake because it will often be a different size.

And one time a snake cozied up to my garden hose. I had just bought a new black hose, stretched it out in the garden and fastened a sprinkler on the

**Remember, snakes will be the most active when the temperature is comfortable for you, but that doesn't mean that they can't be out at other times, either....In fact, the only time any of our family has been bitten was on a very cold night in late November.**

wasn't a rattle, but yet was enough like a rattle that I felt uneasy. I kept looking until I found a little rattler only about six inches long and no bigger around than my little finger with its stubby tail up in the air trying its best to rattle. It reminded me of a teen-age boy, whose voice comes out in different octaves. Little rattlers may not have as much venom as big rattlers, but they often deliver all their venom in one bite, so they can be as deadly as big rattlers.

end. Then I walked back along the hose to make sure it was straight and was startled to see a black rattler about as big around as the hose and about the same color laying full length right up against the hose. As I stood there trying to decide what to do, the snake raised its head and bit my hose. Then it hurried off and disappeared under a rock leaving two jets of water spurting up out of the fang holes in the hose. I was so mad about the holes in my new hose that I would have killed that



Rattlesnake bites are usually not fatal to healthy adults even if, for some reason, the bite is not treated. Most fatalities occur in small children, whose bodies are too small to deal with a massive amount of poison, and the elderly whose bodies are more fragile.

snake if I could have found it. But I had to laugh, too. You don't suppose that snake felt spurned by the hose and took revenge, do you? Nah. But I still do wonder what brought about the attack.

## **A birthing nightmare**

Do rattlers swallow their young to protect them? No. This old wives tale probably started when someone killed a rattler about to give birth and found live snakes inside it. All snakes hatch from eggs, but rattlesnakes, as well as some garter snakes and water snakes, produce live babies. The eggs hatch inside the mother's body and the little snakes crawl away on their own and have to take care of themselves from the beginning.

Several years ago our family had the misfortune to see this first hand. Just a few feet from our old log house is a concrete slab that had once been the floor in a garage. We had long ago torn down the garage, but we left the slab because it is a good place to pull machinery and vehicles up onto so we can work on them up out of the dirt and mud.

It had been very warm that spring day, but now, at dusk, it was turning chilly. Duane had just finished making a welding repair on the garden tiller and was backing it off the slab when he ran over what in the semi-darkness he thought was a branch. But it turned out to be a large black rattler that had crawled up on the slab for the warmth of the concrete. When he looked back he was horrified to see a mass of only slightly premature babies come tumbling out of a gash in the snake's side. Each snake was tightly coiled within its own egg sack, but after lying on the

warm concrete for a few seconds they tried to uncoil and crawl away. Duane quickly relit the welding torch and seared the snakes before they could crawl under the house and make a den. We estimated there were at least 50 little snakes. A female rattler normally has between 50 and 100 babies at a time. Even after all these years we sometimes have nightmares about baby snakes.

## **Two types of venom**

Some facts about venom: There are two kinds of venom—the neurotoxins which paralyzes nerves, especially those nerves controlling breathing and heart action, and the hemotoxins which destroy red blood cells. All rattlesnakes have the hemotoxins, but the green Mojave rattler has both kinds of poison and that makes it doubly dangerous.

## **What if you are bitten?**

First, if you are bitten, rattlesnake bites are usually not fatal to healthy adults even if, for some reason, the bite is not treated. Most fatalities occur in small children, whose bodies are too small to deal with a massive amount of poison, and the elderly whose bodies are more fragile.

When a bite occurs and the snake injects its venom into the victim, there is general discoloration of the skin due to the destruction of the red blood cells, and there is marked pain and swelling. There is also general weakness, rapid pulse, sometimes nausea and vomiting, shortness of breath, dimness of vision, and shock, all of which may come on rapidly or over a period of time. These symptoms develop as the poison starts to circu-

late in the blood; therefore it is important to immediately keep the patient as quiet as possible to slow blood circulation. Do not let the victim walk, run, jump about, or move the arms and legs unnecessarily.

If the bite is on an arm or leg, have the victim lie down with that limb lower than the heart so that circulation will be slowed somewhat, then tie a constricting band from two to four inches above the bite and between the heart and the bite. This band should not be tight enough to stop the flow of blood, but it should decrease the flow of lymph from the affected area. If the band is properly adjusted, there will be some oozing from the wound.

Slowing the spread of the poison through the body is the first step in treatment. Packing the wound with ice is not recommended, however. The extreme cold damages the tissues around the wound, adding frostbite to snake bite.

The second step in treatment is to get rid of the poison. This can be done physically by suction or chemically by antivenin. The old cut and suck method is still used, but it has been done incorrectly so often, thereby causing a lot of damage, that it is now looked upon as almost a last resort when no other treatment is available within about an hour of the incident. Also, it is not of much value if it is not done within the first 30 minutes after the bite because the venom usually will have been circulated widely through the body in that length of time.

If you are in a situation where you need to remove the poison by suction, there are a few cautionary measures to keep in mind:

- **Sterilize the blade or razor before making the incisions.** This can be done quickly by passing the blade through a flame—several matches, over a camp stove, or even through a campfire. You do not want to add any more bacteria to the wound than you can possibly help.

• **Make an X-shaped incision over each fang mark, but make the incisions only about 1/4 inch long and 1/8 inch deep**, which is just skin deep. No more. You want to open the wound at the skin; you do not want to cut nerves, tendons, or muscles that sometimes lie very closely under the skin.

• **Apply suction gently**, using a suction cup if at all possible. Most snakebite kits include suction cups, but a breast pump works just as well. If, as a last resort, you have to use your mouth, do not swallow the poison, and rinse the mouth often with water. Snake venom is neutralized by stomach acids, but it is not something you want in your digestive system. And beware: the poison could affect you if you have a cut or sore in your mouth or on your lips. Also, you will introduce a lot of germs into the bite wound from the saliva in your mouth. Mouth suctioning is a risky process, both for the patient and the caregiver. To be most effective, continue suction for an hour or more.

Last summer I pulled the venom out of a snakebite on our dog, Casey, in a different way. I knew Casey had been bitten within 20 minutes of the time she had come back to the house with a swollen leg because I had just fed her. And I also knew she would never stand still and let me make an incision and apply suction to her foot where I could see fang marks. The leg was greatly swollen and the swelling started up into her hip and back in the short time I took to examine her. She could hardly stand.

I happened to spot the box of Epsom salts setting on the kitchen counter where I had just soaked a sore finger. Thinking I had nothing to lose, I quickly made a solution of warm Epsom salts in a bucket and stuck Casey's foot and leg down into the bucket. She immediately became quiet as if the solution was soothing and she reached over and licked my hand. In a few seconds I could see a clear exudate oozing out of the fang marks, and the swelling started going down as fast as it had

advanced. Husband brought a bucket of fresh solution and we kept changing the solution often and soaked Casey's leg for at least half an hour before she became impatient and wouldn't stand still any longer. In that time the swelling had disappeared, except at the site of the bite. We weren't going to town for three or four days, but when we did go we took Casey to the vet to be checked even though the swelling was all gone by then. The vet said the dog was fine and didn't even prescribe antibiotics. Casey healed completely in another week.

Of course, I can't recommend this treatment for anyone else, and I don't know if it would work on humans or not, but it was a simple treatment and I know it helped our dog.

## Antivenin

Antivenin is made by injecting small doses of venom into horses until the animals become immune. Then the serum is made from the horses' blood. Because many people are allergic to horse serum, it is necessary to test a patient for sensitivity before giving antivenin. If you are far from medical help, and feel comfortable giving either intravenous or intramuscular injections, you can keep antivenin on hand and use with precaution. I used to keep antivenin and intravenous supplies on hand, but they are expensive and they become outdated after awhile. Although I am a nurse, I would much rather call the emergency helicopter service we have made arrangements with and have quick transport to a hospital than to give the antivenin myself. We are very isolated where we live, but with a cell phone and a previous filing of our location with the Arizona State Department of Transportation, we can now be taken to an emergency center almost as quickly as people who live in the city.

## Venom benefits

Another fact about venoms: the snake venoms themselves, not serums made from immune animals, have

important medical uses not connected with snakebite. The neurotoxin venoms are used for the treatment of severe pain and the hemotoxins are used for treating abnormal bleeding conditions. So I guess those creepy-crawlies aren't all bad even if I don't like them.

## A snake story

I can't talk about venom without telling one last snake story. When our sons were in high school, they had an adventurous chum named George who made extra pocket money by collecting live snakes for the lab at Arizona State University—the same lab that was so helpful to me. The lab milks the snakes of their venom for pharmaceutical companies, which make antivenin.

The reptile curator at the lab taught George how to snare a snake just behind the head with a loop, swing it around, and release it onto a block of ice in a styrofoam ice chest. The ice kept the snakes somewhat docile until George could transport them to the lab. One hot August day George arrived at our place at dawn and by 10 o'clock he had six prime rattlers iced down in his chest. He tied the lid on tightly with a rope, and then with tie downs securely anchored the chest in the back corner of the bed of his pickup so the snakes wouldn't turn the chest over if they became active.

When he got to town, George stopped at a Circle K for a cold soda, and when he came out of the store his ice chest, snakes, rope, tie downs—everything—was gone. Stolen. He drove around the area for awhile thinking he might find the chest dumped someplace, but he never found it. Our family has often wondered what the thieves did when they found out they had six cold rattlers instead of six cold Buds. All kind-hearted George said was, "I hope whoever took that chest looked in it before they stuck their hand in it." Δ

# THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a continuing feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

President and Mrs. Clinton are in the front row at a Yankees game. The row behind them is taken up with Secret Service agents. One of them leans over and whispers in the President's ear. Mr. Clinton pauses, then suddenly grabs Hillary by the scruff of the neck and heaves her over the railing. She falls 10 feet to the top of the dugout, kicking and screaming obscenities.

The President shakes hands of those near him and gets "high fives." The Secret Service agent leans over again and whispers, "Mr. President, I said they want you to throw out the first PITCH!"

A guy gets up really early in the morning to go ice fishing. He goes out onto the ice with his tent, his pick, and his fishing rod and starts to pick at the ice. Then he hears a big booming voice: "THERE'S NO FISH UNDER THE ICE."

The guy looks around and then starts to pick at the ice again.

Then he hears the voice again: "THERE'S NO FISH UNDER THE ICE."

Now the guy is getting a little edgy.

He looks up, "God, is that you?"

There's no answer, so he starts picking again.

"THERE'S NO FISH UNDER THE ICE."

Then the guy yells "God, is that you?"

"NO, IT'S THE MANAGER OF THE ICE RINK."

**Women will never be equal to men until they can walk down the street with a bald head and a gut, and still think they are God's gift.**

A doctor is testing three elderly Alzheimer's patients. He asked the first, "What's three times three?"

The patients replied, "187." The doctor rolled his eyes.

He asked the second patient, "What's three times three?"

The patient replied, "Thursday." The doctor shook his head.

He asked the third patient, "What's three times three?"

The third patient replied, "Nine." "That's right. How did you get nine?"

"I subtracted 187 from Thursday."

## SCHOOL JOKES

The children had all been photographed, and the teacher was trying to persuade them each to buy a copy of the group picture. "Just think how nice it will be to look at it when you are all grown up and say, 'There's Jennifer, she's a lawyer,' or 'That's Michael, he's a doctor.'"

A small voice at the back of the room rang out, "And there's the teacher, she's dead."

A teacher was giving a lesson on the circulation of the blood. Trying to make the matter clearer, he said, "Now, boys, if I stood on my head the blood, as you know, would run into it, and I should turn red in the face."

"Yes, sir," the boys said.

"Then why is it that while I am standing upright in the ordinary position the blood doesn't run into my feet?"

A little fellow shouted, "Cause your feet ain't empty."

A new teacher was trying to make use of her psychology courses. She started her class by saying, "Everyone who thinks you're stupid, stand up."

After a few seconds, Little Johnny stood up. The teacher said, "Do you think you're stupid, Little Johnny?"

"No, ma'am, but I hate to see you standing there all by yourself."

A state government employee sits in his office, and out of boredom he decides to see what's in his old filing cabinet. He pokes through the contents and comes across an old brass lamp.

"This will look nice on my mantelpiece," he decides and takes it home with him. While polishing the lamp, a genie appears and grants him three wishes.

"I wish for an ice cold diet Pepsi right now." He gets his Pepsi and drinks it. Now that he can think more clearly, he states his second wish.

"I wish to be on an island where beautiful nymphomaniacs reside." Suddenly he is on an island with gorgeous females eyeing him lustfully. He tells the genie his third and last wish:

"I wish I'd never have to work ever again."

POOF! he's back in his government office.



Airman Jones was assigned to the induction center where he was to advise new recruits about their government benefits, especially their GI insurance. It wasn't long before Captain Smith noticed that Airman Jones had almost a 100% record for insurance sales, which had never happened before. Rather than ask about this, the captain stood in the back of the room and listened to Jones's sales pitch.

Jones explained the basics of the GI Insurance to the new recruits, and then said. "If you have GI Insurance and go into battle and are killed, the government has to pay \$200,000 to your beneficiaries. If you don't have GI insurance and you go into battle and get killed, the government has to pay only a maximum of \$6,000.

"Now," he concluded, "which bunch do you think they are going to send into battle first?"

### Van Gogh jokes

After much careful research it has been discovered that the artist Vincent Van Gogh had many relatives. Among them were:

His obnoxious brother, Please Gogh  
His dizzy aunt, Verti Gogh  
The brother who ate prunes, Gotta Gogh  
The brother who worked at a convenience store,  
Stop n' Gogh  
The grandfather from Yugoslavia, U Gogh  
The brother who bleached his clothes white, Hue  
Gogh  
The cousin from Illinois, Chica Gogh  
His magician uncle, Wherediddy Gogh  
His Mexican cousin, Amee Gogh  
The Mexican cousin's American half brother, Grin  
Gogh  
The nephew who drove a stage coach, Wellsfar  
Gogh  
The constipated uncle, Cant Gogh  
The ballroom dancing aunt, Tan Gogh  
The bird lover uncle, Flamin Gogh  
His nephew psychoanalyst, E Gogh  
The fruit loving cousin, Man Gogh  
An aunt who taught positive thinking, Wayto Gogh  
The little bouncy nephew, Poe Gogh  
A sister who loved disco, Go Gogh  
His Italian uncle, Day Gogh  
And his niece who travels the country in a van,  
Winnie Bay Gogh

### LAWYER JOKES

What's the difference between a divorce lawyer and a boxing referee?

A boxing referee doesn't get paid more for a longer fight.

Lawyer: Someone who makes sure that he gets what's coming to you.

There's an interesting new novel about two ex-convicts. One of them studies to become a lawyer, and the other decides to go straight.

Four out of five doctors say that if they were stranded on a deserted island with no lawyers, they wouldn't need any aspirin.

If a lawyer and an IRS agent were both drowning, and you could only save one of them, would you go to lunch or read the newspaper?

Why should lawyers always be buried face down? If they wake up, they'll start digging.

While driving down a desert highway, you see Saddam Hussein on one side of the road, and a lawyer on the other. Which do you hit first?  
Hussein. Business before pleasure.

The two partners in a law firm were having lunch when suddenly one of them jumped up and said, "I have to go back to the office. I forgot to lock the safe!"  
The other partner replied, "What are you worried about? We're both here."

### TOP TEN THINGS THAT MEN UNDERSTAND ABOUT WOMEN

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

# From the architect's chair

## Framing—things to think about

(In this column, Vermont rural architect Martin Harris discusses building topics. Readers are invited to submit questions about residential and light commercial building design and construction. Send questions to *BHM*, P.O. Box 712, Gold Beach, OR 97444; e-mail: [martin@backwoodshome.com](mailto:martin@backwoodshome.com). Access Martin's "Construction Dispute Service" directly at [www.together.net/~mharris](http://www.together.net/~mharris).)

**B**efore beginning any building project, it is usually beneficial, from a time and cost perspective, to think through all the possible alternatives, weighing the pros and cons of proceeding with each alternative.

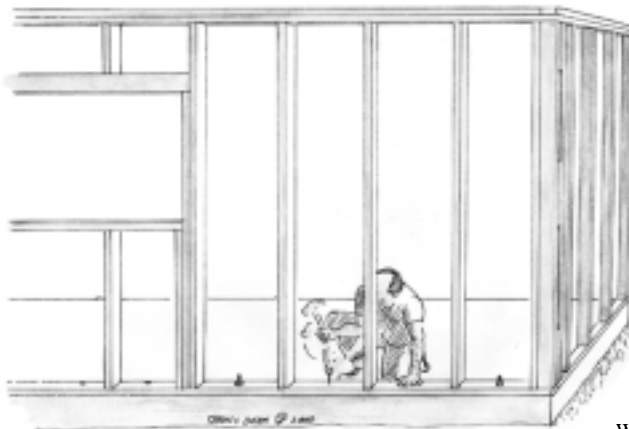
When it comes to framing a house, sitting down and thinking is especially helpful because modern versus traditional framing alternatives involve significant differences in your labor and cost.

Architects like to poke a little fun at small-building contractors by describing them as guys with a pick-up truck and a Skilsaw. What contractors say about architects I won't repeat in this family magazine, except to say that much of it is well-deserved. The Skilsaw short-hand label comes from the way we build, framing our structures, typically, with dimension lumber (or frequently, these days, with light-gauge steel in dimension lumber sizes) to stick-build walls, floors, and roofs.

It's a typically American construction style. In most of the rest of the world, walls are built of solid masonry, and framing systems, as we know them, are used only for floors and roofs. That's the way we used to build here. If you look at construction types

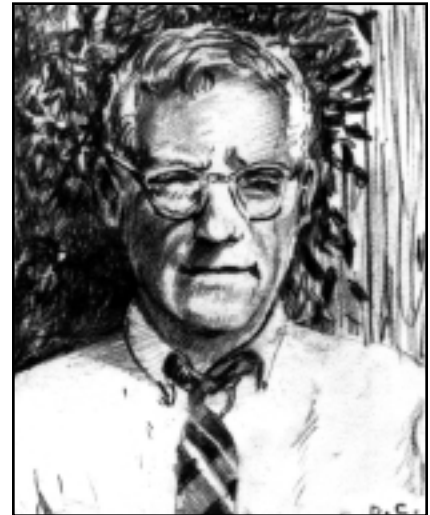
in the building code books, you'll still see a classification called "ordinary construction," described as a technique where walls are built of solid brick or stone which supports floor and roof framing. But ordinary construction isn't ordinary anymore. It's been losing market share for all of this century, and it is used now only for fairly specialized, usually historic, projects. Thus, stick wall framing is what you're most likely to be doing.

Users of sun-dried mud-bricks, carved marble blocks, concrete masonry units (what used to be called cinder blocks), and rammed-earth sys-



tems read no further; from here on out we're looking at stick-built framing as it would be used in residential and light commercial construction.

And we're looking at the way it's being done now, for this is an evolving industry. Wall framing is no longer being done the way it was only a score of years ago, and it won't be done just as it is now for a long time into the future. The enormous pressures for labor and materials efficiency are forcing changes in techniques and products even as I write this article.



Martin Harris

### Framing methods

Wood-framing developed in the once heavily forested areas of northern Europe, England, and Scandinavia. By the time those Europeans were migrating to North America they brought with them an extremely complex traditional framing system of heavy timber construction assembled with complex mortise and tenon joints and intuitively engineered for strength in ways that modern engineers still admire.

Today, simpler framing methods are used employing dimension lumber—that's using wood with a nominal 2-inch thickness and a depth varying from 3 to 12 inches depending on application. But these methods continue to be simplified as builders seek to avoid time-consuming joint construction involving one stick pieced into another. For example, it used to be standard practice to construct diagonal bracing at building corners by using a diagonal 2x4 "let in" to a series of notches in the adjacent vertical studs. That's hardly ever done anymore. Builders use thin metal strapping nailed to the surface of the studs to create the same diagonal effect.

Next, consider the way the time-honored 2x4 exterior wall has been losing popularity to new varieties of the same basic idea. For example, builders are now using 2x6s and 2x8s for studding primarily because the added wall depth allows for a thicker insulation infill, thus creating a final building shell with a better energy efficiency potential. In my own design work, I'm using a staggered stud configuration with two rows of 2x4 studding with a 1-foot offset, creating an 8-inch-thick wall that can accept two 4-inch thicknesses of batt insulation. In practice, it works better than the insulation depth alone would suggest because the wood studding doesn't create a thermal pathway from inside to outside.

## Steel framing

Then, consider the way light-gauge steel framing is replacing wood framing across much of the country where it's now directly competitive in price. The individual pieces are sized with outside dimensions about the same as the wood pieces they replace, and builders are learning that it isn't much different cutting a 2x4 with a carbide blade instead of a framing blade, then fastening it with sheet metal screws instead of nails.

## Stick alternatives

And, finally, consider the way traditional wood framing is itself being challenged by a variety of nonstick-built alternatives. The ICF (that's short for insulated concrete forms, a technique in which the foam insulation remains after the poured concrete wall has set up) industry now claims that it can compete head-to-head with traditional dimension-lumber framing, and produce a final product which, they argue, is more "permanent." Maybe so.

There's a number of panel systems on the market which use pre-fab units of insulation sandwiched between sheets of plywood, edged with 2x4s or 2x6s, which can be nailed together on site. All of these, too, claim to be com-

petitive with the stick construction we all grew up with.

## Do-it-yourself building

For the do-it-yourself builder, I suspect that the economic claims of some of these would-be alternatives to traditional wood framing won't stand up. That's because they offer a somewhat more expensive product line and promise that it can be put in place faster, thus saving on labor costs. It's a valid argument on the typical commercial job site, where time is indeed money. But it fails for the low-cash-flow weekend warrior, who isn't really counting his or her labor cost with great concern and is more worried about being able to afford the raw materials of construction. In that context, no sophisticated pour-in-place or panelized system can match up to the good old dimension lumber wall frame, put in place by amateur or semi-pro with Skilsaw and hammer.

In most parts of the country, even light-gauge steel framing doesn't quite compete on a materials-only cost basis with wood framing. A good example shows up in the vehicle repair shop built recently by a neighbor of mine. For the major interior columns he cut a pair of hardwood logs from his woodlot. When I compared his hourly billing rate for auto repair with the time he took to cut and drag those logs by snowmobile to the jobsite, it's pretty clear that he was, in theory anyway, spending more for the columns than necessary. That's in theory. In the real world of out-of-pocket expense and after-tax dollars, those two logs cost him less than the pair of steel lally columns (concrete-filled steel tubes) they eliminated.

If do-it-yourself builders are pretty intuitive about selecting low-final-cost materials and knowing when it's actually more cost-effective to hire in-place work done (pouring footings, frost walls, and slabs, for example) they're generally not so good when it comes to the basic engineering which accompanies the typical wood

framing used for residential and light commercial construction.

The shortfall shows up in two major areas: the selection of appropriately sized and spaced floor joists for the intended live load and span, and the incorporation of the needed lateral (wind) load resistance into the structural framing. Mostly, they get away with both weaknesses, because no one seems to object to a little floor springiness that really shouldn't be there, and most buildings in these two categories contain enough internal partitions to create outside wall stiffness unintentionally.

But sometimes they don't. I've seen a number of projects where support columns and girders ended up cluttering a ground-floor retail sales space because the second floor was too lightly framed and needed support. I've also seen a few cases of wind damage which revealed lack of attention to the lateral load problem, not in houses, for the reason given above, but in light commercial work where the roof trusses were inadequately connected to the wall tops.

I've only seen one situation where the wall framing was directly at fault, however, and that one is worth describing. It was an open-plan retail sales space, about 50-feet deep, roofed over with wood trusses spanning from the rear wall, which was a reinforced concrete retaining structure required because the building was dug into a sloped site, to the front wall, which was mostly glass with support mullions between the window units. Of course, half the total roof load would bear on the rear wall—no problem there—and half on the front framing. That was the problem because it turned out that half the roof load—both dead (structural weight) and live (snow and wind)—added up to more than a couple of 2x6s placed vertically every 4 feet could safely carry and transmit to the wood groundsill on which they stood. The groundsill was showing fiber crushing under the paired 2x6s, resulting in distorted win-



dow frames and a few cracked windows. The resulting roof sag was invisible to the naked eye, but it was there.

The cure was fairly simple: to bring the roof load down through the paired 2x6s in such a way as to spread it out over more of the groundsill surface. We had two choices: to nail and glue short pieces of 2x6 to the sides of the paired columns, making them 8x6 where they touched the groundsill and spreading the roof load over twice as many square inches of groundsill, or to slip a metal plate under each paired 2x6 column to achieve the same objective. The owner chose the latter. There's been no settlement problem since.

Every story, even a construction-deficiency story, should have a moral. Here's this one: intuitive engineering doesn't always cut it any more, now that we're building with long-span roof trusses and sometimes widely-spaced framing supports. When we were building with plain old stud walls, overloading the wood fibers of the groundsills never happened and it was a non-problem. Now, it can be a problem. It's easy enough to deal with, as the above-described fixes show. The key is to think ahead in the

design and, if you think you're going to overload some part of your framing, take corrective action in the initial construction rather than later when it will be expensive.

For those readers who want to run the numbers, here they are. Here in northern New England, we use a 50 pounds-per-square-foot combined wind and snow load and a 10 psf structural dead load, so the total roof weight is 60 psf. If half the roof rests on the front wall and the building is 50 feet deep, that's 60 pounds times 25 feet or 1500 pounds per lineal foot bearing on the front wall. If the supports are, say, 4 feet apart, that's a load of 6000 pounds per column. If we figure each pair of 2x6s at 16.5 square inches in cross-section (1.5"x2x5.5"), the load works out to 364 pounds per square inch. That's fine for the softwood columns, as No.1 grade hemlock is rated at 1000 psi parallel to the grain. But this is not so fine for the groundsill, which for some hemlock species is rated at only 245 psi perpendicular to the grain. Exceed that load on a psi basis and the wood fibers will crush, which is what happened in the above example. Doubling the base area of the columns by adding short cripples on each side

cuts the psi load from 364 to 182, well within acceptable limits. These sorts of calculations aren't all that hard to do, and they're important when you're dealing with bigger spans and column spacings than we used to deal with. If you don't want to run the numbers, just add the cripples whenever you're in doubt; they don't cost much in time or materials.

Your numbers may differ, of course. You may have to plan for more (or less) snow load than in my example. If your roof uses a heavy finish material and a ceiling under the trusses, a 10 psf dead load number won't be enough. Whatever species and grade of wood you use, there are published tables showing the allowable load per square inch. I'll be the first to admit that all these official numbers are conservative, and you can exceed them—sometimes substantially—and get away with it. But most buildings, houses, and light commercial get sold eventually, and you can imagine what a selling point it is to be able to say to the purchaser that it was framed in accordance with basic engineering principles. That's when prudence is rewarded with dollars.

## Construction q's and a's

*We are building on a mountain ridge. The greenstone bedrock of the mountain is very near the surface in spots. We were thinking of using a totally aerobic processing site for our grey water. Our only waste will be grey water, as we will be using a composting toilet. Are there such aerobic systems available? Do you see it as feasible to persuade county health officials that such a system would be adequate?*

**Jacob Silver, Ph.D.**  
**[jacobsilver@home.com](mailto:jacobsilver@home.com)**

The short answer to your inquiry goes like this: yes, it's readily available

as off-the-shelf technology, but good luck trying to get a health official to say it would be legally feasible.

The long answer is more complicated and starts with the political fact that rural sewage disposal technology is now the weapon of choice for the antisprawl activists in government in most growth-conscious states. One way to prevent sprawl is to establish legal barriers to various non-traditional on-site sewage disposal systems, thus placing such acreage as mountaintops, for example, in the don't-even-think-of-building-here category. There are all sorts of ways to dispose of grey water

in an environmentally-gracious way, and all of them are outlawed by states like Vermont, for example, which boast of an overall land use policy aimed at forcing new development to stay off farmland, out of the woods and swamps, and off the ridgelines. If you were free to select the best available technology for grey water disposal, you'd have four basic choices, one of which you have already identified: aerobic treatment. The others are natural evaporation, artificial evaporation, and partial treatment with re-cycling.

Aerobic treatment is the most traditional of the above options: it's what normally happens in an on-site system when effluent flows out of the

typical septic tank, where it's been primary-treated by anaerobic bacteria, to an in-ground tile field built of perforated pipe runs laid in gravel-filled trenches fairly close to ground surface, so that aerobic bacteria can provide the necessary secondary treatment before the effluent (clear, odorless, water at this point) can either flow into the soil or evaporate into the air. If you are careful to keep vegetable scraps from going down the kitchen-sink drain, you'll have no solid waste, need no septic tank and would, in a pure engineering sense, be able to utilize only an aerobic effluent treatment-and-disposal system. The final product, a purified water, wouldn't have much soil to go into on a mountain ridge, but it could join on-site rivulets or evaporate, both choices being environmentally okay—but not legally okay. Vermont, where I live, has rules that are fairly typical, forbidding on-site tile fields where there's less than three feet of granular soil above the bedrock.

It's also technically feasible to evaporate effluent harmlessly into the air. The procedure is simplicity itself: effluent flows coming from primary treatment in a septic tank are directed into a shallow lagoon where they are secondary-treated by aerobic bacteria (small aeration bubblers might be added to accelerate the process) and allowed to evaporate. No soil base is needed because no water goes into the soil. How big a lagoon is needed? In most of the country, nature will evaporate about two vertical feet of water per year, more in hot dry regions, less if rain and snow are allowed to re-fill the lagoon. To capture the full two feet of evaporation in a wet climate, a low-cost roof on poles, no walls, keeps the precipitation out and the breeze blowing through. It's a fool-proof technology, but one that's unacceptable to many state bureaucracies, primarily because it would permit development in undeveloped areas. A refinement of the evaporative lagoon is the evapo-transpiration lagoon,

where water-based plants such as duckweed are used to accelerate the process. Interestingly, evapo-transpiration has the blessing of federal research (The University of West Virginia runs a "small-flows" study center), but not much acceptance at state or local level for the same anti-sprawl reason.

For those who don't like the idea of a non-swimmable pond in their back yard, effluent can also be evaporated mechanically. Fuel-fired evaporators, using stored solar energy in the form of hydrocarbons rather than immediate solar energy in the form of sunshine, do the job. However, unlike sunshine, fossil fuels aren't free; it costs about 4 cents a gallon to boil water away. That's more in operating costs than a conventional in-ground system, but less than options like pump-and-truck. Mechanical evaporators take up little space, but cost a lot more to purchase than one would spend digging a lagoon and putting a fiberglass roof over it. Anti-growth states don't like mechanical evaporators any more than they like lagoons.

Finally, there's recycling, another technologically-based effluent treatment. With the kind of machines manufactured by Thetford Industries (just an example, I'm not a shareholder) used grey-water is purified enough to be reused for toilets and gardening, but not enough for drinking. It makes sense where water is costly—in the desert, for example—but less so where composting toilets are used or replacement water is relatively cheap. It also makes sense where sites are too small to support a full-flow disposal system, but could accept a smaller one because some percentage of the effluent is being recycled. It doesn't eliminate the need for a disposal system entirely, and so doesn't solve the problem where on-site soils don't meet official criteria for on-site disposal.

Full recycling, all the way from sewage effluent back to potability, is a doable technology, but probably not

affordable to you, a mountaintop landowner. It will be a while, in fact, before it is affordable to anyone other than NASA rocket scientists using taxpayer dollars. But our land-owner's problem is less one of cost than regulation: you want to build where a lot of people with power don't want you to build. Δ



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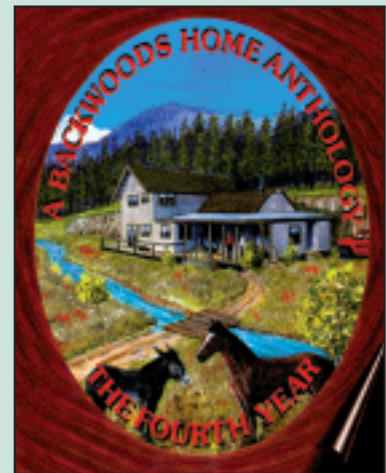
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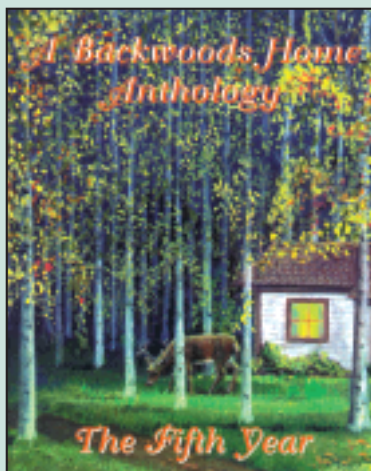
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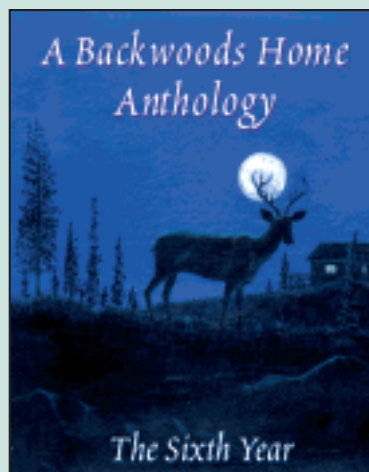
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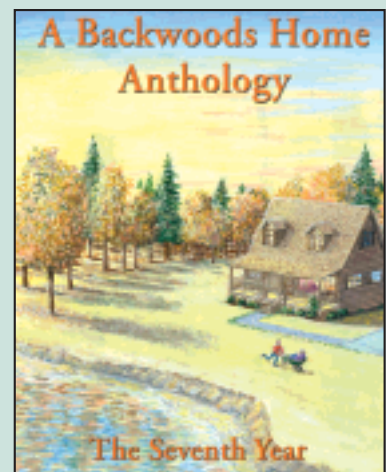
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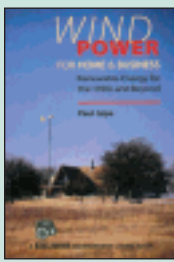


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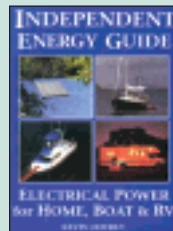


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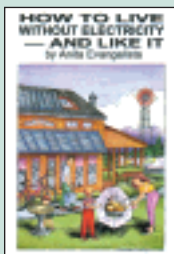


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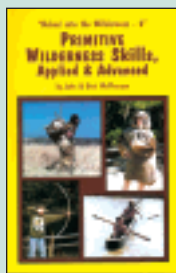


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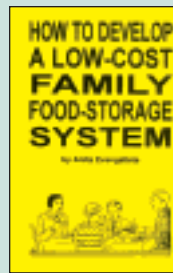


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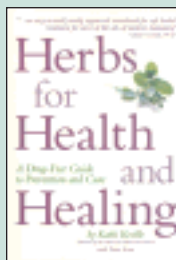


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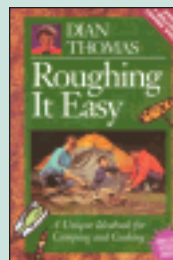


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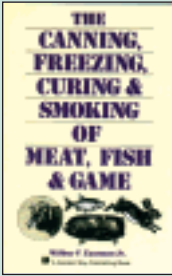
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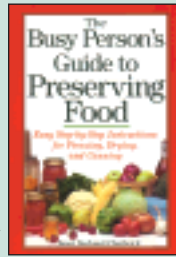
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Step-by-step illustrated instructions for preserving fruits and vegetables: freezing, canning, cold storage, root cellaring, and drying. Includes recipes for meals, salsas, herbal vinegars, pestos, jellies, and teas. 212 pages; 6 x 9" ppbk. \$17.95



FP3

## DAVE MILLER'S HOMEBREWING GUIDE

Miller provides brewers with his two decades of know-how to ensure that they make great-tasting beer or ale every time. Explains equipment of the 90's, recipe formulation, and troubleshooting. Includes 33 recipes. 358 pages; 6 x 9" ppbk. \$19.95



FP4

## ROOT CELLARING

This book tells you how to use root cellaring as a means of natural storage. It is the first book devoted entirely to the subject and covers it thoroughly. It explains the vegetable and fruit varieties that store best, how to use root cellars in the country and the city, how to build your own root cellar, and more. 298 pages; 6 x 9" ppbk. \$17.95



FP5

## BASIC BUTCHERING OF LIVESTOCK & GAME

This book is for anyone who hunts, farms, or buys large quantities of meat. The author takes the mystery out of slaughtering and butchering everything from beef and veal, to venison, pork, and lamb. The text is easy-to-follow and there are 130 detailed illustrations to assist in the complete step-by-step instructions. 194 pages; 6 x 9" ppbk. \$17.95



FP6

## BACKYARD MEAT PRODUCTION

With the helpful instructions in this book, you can easily meet your family's animal-protein needs for a fraction of the amount you currently spend, while maintaining a higher standard of quality control over feeding and butchering that will ensure healthier meat for you and your loved ones. 132 pages; 5 1/2 x 8 1/2" ppbk. \$17.95



FP7

## COLD CLIMATE GARDENING

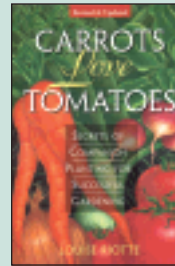
Provides invaluable information to northern gardeners that shows how to grow food, landscape, protect vulnerable plantings, warm up the soil earlier, and just which species are appropriate to your area. This book is useful for those who garden in microclimates like valleys or hillsides or those who just want to extend their growing season in any climate. 308 pages; 6 x 9" ppbk. \$19.95



FP8

## DIRT CHEAP GARDENING

This book contains tips, tricks, and hints that show you hundreds of ways to save money in your garden including how to reuse and recycle; identify and acquire useful tools; use low-cost ways to ensure healthy plants; buy, save, and start seeds; obtain plants cheap—or free; and even which plant varieties save money. 166 pages; 6 x 9" ppbk. \$12.95



FP9

## CARROTS LOVE TOMATOES

This is more than just carrots and tomatoes, it is a book about companion planting. It shows the gardener how to use plants' natural partnerships to produce bigger and better harvests, how to avoid putting together those that work against each other and even plants that promote natural pest control. 220 pages; 6 x 8 7/8" ppbk. \$17.95



FP10

## SEED SOWING AND SAVING

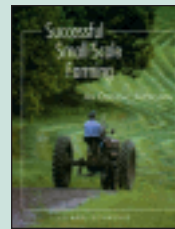
Here's all the information and guidance you'll need to start saving seeds from your favorite vegetables, herbs, and flowers for planting. Dozens of charts and over 300 step-by-step illustrations show you how to determine when seeds are ready for harvest and how to collect and store them. 218 pages; 8 1/2 x 11" ppbk. \$22.95



FP11

## SELF-SUFFICIENCY GARDENING

This 128-page book is subtitled "Financial, Physical and Emotional Security from Your Own Backyard." It's a practical guide for increasing your self sufficiency by growing vegetables, fruits, nuts, herbs, medicines, and other useful products. 128 pages; 8 1/2 x 11" ppbk. \$16.95



FP12

## SUCCESSFUL SMALL-SCALE FARMING

This classic guide to organic small-scale farming—fully updated for the 1990s—covers a wide range of topics, including soil improvement, machinery, best cash crops, marketing, and essential skills. It shows that small-scale farms can be cleaner, smarter and more efficient than agribusiness. 134 pages; 8 1/2 x 11" ppbk. \$15.95



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## A GUIDE TO RAISING CHICKENS

This informative book is for both the beginning and experienced chicken owner and covers selecting a breed that will suit you and your environment, taking care of chicks, eggs for eating, raising broilers, feeding your flock, and troubleshooting the problems that are bound to occur. 341 pages; 6 x 9" ppbk. \$21.95



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## A GUIDE TO RAISING PIGS

This book offers small-scale farmers and 4-H or FFA youngsters clear, illustrated information about every aspect of pig raising. Included are choosing the right breeds, feeding and housing, health maintenance and disease prevention, butchering and pork processing, showing, and raising pigs as a business. 314 pages, 6 x 9" ppbk. \$21.95



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Here's the small-scale sheep raiser's bible and it is newly revised to reflect the changes occurring in the industry over the last 13 years. It includes new theories about breeding, pregnancy management and the handling of lambs, new medications and vaccines, and a whole new chapter on guard dogs. 278 pages, 6 x 9" ppbk. \$15.95



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FP16

## CHEESEMAKING MADE EASY

How to make 60 varieties of cheese at home and includes what equipment is required as well as how to prepare a starter culture, use rennet, control temperature, and color. It has an easy-to-follow format, photos, & illustrations.

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This is the completely revised Garden Way Publishing classic on raising rabbits. It contains the most recent how-to information for successfully raising rabbits on a small to semicommercial scale including feeding, housing, medication, breeding, showing, and selling.

179 pages; 6 x 9" ppbk. \$15.95

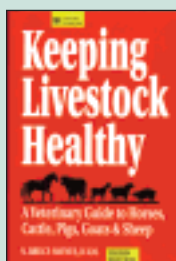


FP18

## RAISING MILK GOATS THE MODERN WAY

This newly revised edition contains up-to-the-minute information on diseases and medication, new breeds, new barn plans, and how to maximize the quality and quantity of milk your goats produce. It also provides clear, practical instructions for breeding, kidding, feeding, milking, housing, and other basics.

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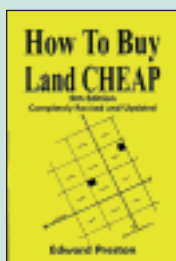


FP19

## KEEPING LIVESTOCK HEALTHY

This newly updated edition has the latest information on the technologies and diseases that livestock owners need to know including developments in vaccines, artificial insemination, drug treatments and new information on diseases such as Lyme disease, Potomac fever, & BSE.

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BU1

## HOW TO BUY LAND CHEAP

Now in its Fifth Edition, this is the bible of bargain-basement guides for cheap land and houses. It's been used to buy building lots, lakefront property, and commercial land all over the United States and Canada, including land from drug seizures and S&L closings.

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## HOW TO BUILD YOUR OWN LOG HOME FOR LESS THAN \$15,000

The author built a 4300-square-foot log home for a fraction of the cost of conventional construction. This book covers site selection, planning, tools, techniques, the foundation, raising the walls, roofing, wiring, plumbing, stairs, windows, doors, and much more.

218 pages; 8 1/2 x 11" ppbk. \$22.95



BU3

## BE YOUR OWN HOUSE CONTRACTOR

Details the steps that go into building a house, from selecting land and getting it financed to developing plans and schedules, selecting subcontractors, negotiating contracts, and buying materials and supplies. The author is a construction loan consultant, former home builder, and the founder of two schools of home building.

138 pages; 6 x 9" ppbk. \$17.95

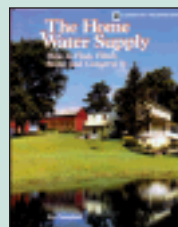


BU4

## BUILDING SMALL BARNs, SHEDs & SHELTERS

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## THE HOME WATER SUPPLY

Concrete and money-saving answers to the questions of how to locate, move, and purify water. This book includes instructions for constructing ponds and how to hook up the plumbing in your home. Reading this you'll know when to try something yourself and when to call a plumber or other expert.

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BU6

## NEW COMPACT HOUSE DESIGNS

Here are the 27 best designs from a competition for single-family houses. Each house has a minimum of two bedrooms but none is more than 1250 square feet. There are drawings, plans, and judges' comments along with addresses of the architects and designers for those interested in scale plans or more information.

188 pages; 8 1/2 x 11" ppbk. \$22.95



BU7

## WIRING SIMPLIFIED

This is the 39th edition of Wiring Simplified, and it's based on the 1999 National Electrical Code. The book is organized into four parts: Getting started—the basics; Wires, circuits, and grounding; Installing service equipment and wiring; and Special wiring situations and projects. New topics include emergency back-up generators and low-voltage wiring.

226 pages; 5 1/2 x 8 1/2" ppbk. \$12.95

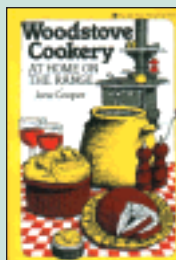


CR1

## COOKIN' WITH HOME STORAGE

Vicki Tate and Peggy Layton reunite in this newly released version of the best book there is on cooking from home stored foods. These Mormon women have years of experience and expertise behind them, and in this excellent book they will show you how to incorporate your stored foods into your everyday life.

302 pages; 5 1/2 x 8 1/2" ppbk. \$19.95



CR2

## WOODSTOVE COOKERY

This book will tell you how to buy a wood stove—new or used, how to set it up, fuel it, clean it, and keep it in peak operating condition. But most importantly it will show you how to cook on it. There are dozens of recipes including breads, stews, roasts, soups, desserts and more. There's even food preservation. A must for the self-reliant.

196 pages; 6 x 9" ppbk. \$15.95



CR3

## HEAVEN'S FLAME

This book provides detailed plans to build a very hot and efficient solar cooker from the barest of materials. The solar cooker can then be used to cook anything from snacks to full meals. Included is an explanation of how solar cookers work and accounts of how they are being accepted and used around the world to produce good cooked meals from sunlight.

145 pages; 5 1/2 x 8 1/2" ppbk. \$18.00



CR4

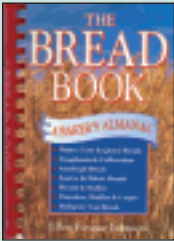
## THE MORNING HILL COOKBOOK

For years, Backwoods Home Magazine readers have enjoyed Jennifer Stein Barker's wonderful vegetarian recipes in the pages of Backwoods Home Magazine. Now here is an entire book (182 pages) of her wholesome, delicious recipes.

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# Backwoods Home BOOKSTORE

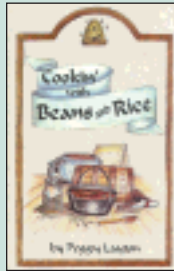


CR5

## THE BREAD BOOK

This book is a month-by-month almanac that offers 140 bread recipes from around the world. It is well illustrated with line and photographs and it contains time-saving tips and advice for the beginning baker.

230 pages; 6 x 9" comb bnd. \$19.95



CR6

## COOKIN' WITH BEANS AND RICE

This book is packed with fun-filled recipes that combine beans and rice, as well as other foods. Peggy Layton is a home economist who has written several books on food storage. With 7 children to feed, she cooks from bulk food storage on a regular basis, and this book reflects her extensive experience.

156 pages; 5 3/8 x 8 1/4" ppbk. \$14.95



CR7

## COUNTRY BEANS

Soups, sauces, and gravies in 3 minutes! 400 heart-healthy, cholesterol-free bean and grain recipes using wholesome storage foods. Learn how to make "user friendly" beans and cheap meals in 30 minutes or less. Low fat or no-fat bean soups, dips, sauces, and gravies from bean flours in only minutes.

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CR8

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TH3

## THE LIBERTARIAN READER

A comprehensive anthology of libertarian thought with readings from the Bible, our Founding Fathers, philosophers, economists, and others explaining why the individual and personal freedom are more important than collectivism and the state. Here is the sensible alternative to the Democrat/Republican monopoly.

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## A NEW DEAL FOR SOCIAL SECURITY

For more than 60 years, Social Security has been the most important source of income for senior citizens. Now facing severe crisis, this book examines the history of Social Security and argues that unless it is restructured and privatized, the baby boom generation, after contributing for a lifetime, will be left out the cold.

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TH5

## LIBERTARIANISM: A PRIMER

This book traces the history of libertarian thought and provides a concise yet thorough treatment of the subject. The writer discusses why libertarianism is morally just, efficient, and practical, and how it would affect public policy in America by leaving decisions in the hands of the individual, creating a freer and more efficient society.

314 pages; 6 x 8 1/2" hdbk. \$26.00



TH6

## SCHOOL CHOICE

This book explains why public schools no longer work, why the NEA resists the reform that would save education, and how and why it mounted one of the costliest political campaigns in American history to stop reform in California. Included is the compelling argument that shows why free choice in education is the one reform that will work.

203 pages; 5 7/8 x 9" ppbk. \$15.95

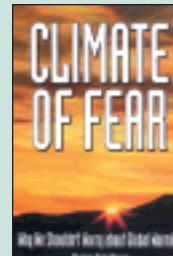


TH7

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The government can take your home, your car, and your money without warning and never charge you with a crime—and the burden of recovery is on you! This book examines the abuse inherent in civil forfeiture, the law that lets government take property that is merely suspected of having "facilitated" crime.

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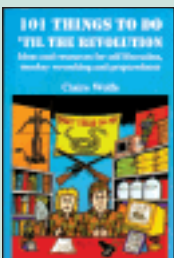


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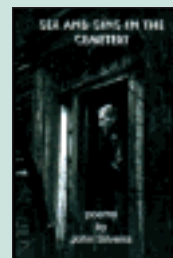


MS2

## IN THE GRAVEST EXTREME

This is everything you should know before you consider acquiring a gun for self defense. Covers technical, tactical, and legal issues. Author Massad Ayoob, a police officer of many years' experience, is a nationally respected authority on firearms.

132 pages; 5 3/8 x 8 1/4" ppbk. \$12.95



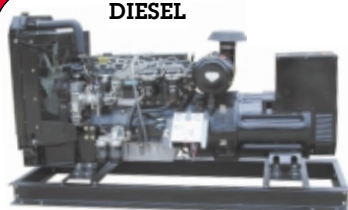
MS3

## SEX AND SINS IN THE CEMETERY

This book contains over 70 of John Silveira's poems about love, work, and death...poems so stark and accessible, you will discover that he is revealing things about you as well as himself. Warning: Some of the poems are explicit and couldn't be published in BHM.

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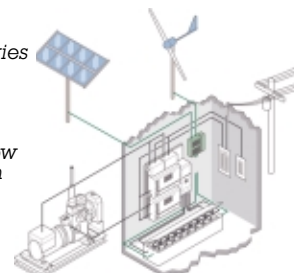
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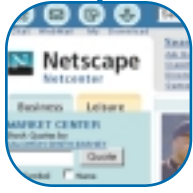


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# Step into the future with your own website

By Oliver Del Signore  
and Mark S. Cogan

**T**he Internet has grown immensely over the past few years with no end to the growth in sight. Every day thousands of new people "get connected" and virtually all Internet service providers (ISPs) include disk space for their client's websites. As a result, new web pages and websites are created every day. Isn't it time you carved out your little section of cyberspace?

Why? Because like the telephone, the car, and the television of yesterday, the Internet represents the future. With a local telephone call, not only can you get connected to nearly everything in the world, including libraries, universities, businesses, and people, but your own website can be your way of relating to the world, including a way to earn you a living.

I'm the webmaster for backwoodshome.com, and in this article Mark Cogan and I will show you how to create your own website.

## Phone service

For people hard-wired to telephone service, this is not a problem. But for some readers who live beyond the reach of the wires, it may be. Cell phone time is expensive and, for now, satellite phones are prohibitively expensive to use for Internet connections.

But there are options. One answer is to use the computer of a friend with Internet access, perhaps sharing the cost of connecting. For those who live within a comfortable driving distance to town, there may be public access computers at the local library or school. It may also be possible to rent time on a computer from a local business.

## Finding an ISP

Before you can construct a web page of your own, you must sign-up with an ISP (**Internet Service Provider**) and establish a web hosting account. Most often, these will be combined into the same account, since virtually all ISPs include disk space and e-mail boxes with each account. Typically, you will find 5 to 25 megabytes of disk space included with your account, although some providers offer less space and some as much as 350 megabytes.

But disk space is not the only thing to consider. Do you want a simple connection to the Net or do you want a service that provides lots of content, like news, games, chat rooms, etc? Do you want 24-hour-a-day help available or will you settle for help during regular business hours? These and other factors determine what you will pay for the service.

You will also want to make sure the provider offers a local access number you can use. If they do not, you may be forced to make expensive toll-calls just to connect to the service.

You will find a short list of national providers in the table on the following page, but there are thousands more, both large and small, who offer competitive prices, features, and Internet access. There is an extensive list of service providers at <http://thelist.Internet.com>. You can search by area code or country and see whole lists. Spend some time exploring the price, options, and features each offers before making a decision.

## 3 types of personal sites

Now that you are connected to the Internet, it is time to think about what kind of website you want. If you have spent any time surfing the Net,



INTERNET SERVICE PROVIDERS	
<b>America Online</b> <a href="http://www.aol.com/">http://www.aol.com/</a> 1-888-265-8001	<b>GalaxyNet-USA</b> <a href="http://www.gnetusa.com/">http://www.gnetusa.com/</a> 1-877-260-4890
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you know the possibilities are endless. In general, personal websites break down into three categories:

- **Personal pages**
- **Data sites**
- **Commerce sites**

The categories often overlap, as in the case of a hobby site that also sells information, products, or services. Let's look at some of the types of sites found in each category:

**Personal and family pages:** Personal pages often feature information and pictures about yourself and your family. They can be as simple as a single page with a picture of the family waving "Hello" to multi-layered, password-protected "extended family" sites where family members from around the world can log in to leave messages and greetings on a bulletin board or even interact in a chat room.

Your personal site can reflect who you are and what you like. You can fill it with information about a particular passion such as snowboarding, paintball, or Elizabethan drama. Your prized collection could become the focus of a site devoted to antique salt and pepper shakers.

You can also use your page for self-promotion. If you are a rising young executive, you could post your picture and a detailed resumé. Are you a musician? If so, include some audio files of you and your band and how to contact you. The possibilities are limited only by your imagination.

**Data sites:** Data sites feature information. Personal pages often overlap into this category. The salt and pepper shaker site mentioned above could also be a data site, since it will likely contain lots of information about the hobby. It might also be a commerce site if you use it to buy and sell items or information.

Other data sites could focus on politics, religion, cars, baseball or sports in general, or any of a million other topics. You could even have a site devoted entirely to links

to other sites. That is exactly what Yahoo!, one of the most profitable sites on the web, does.

**Commerce sites:** Any site that offers something to buy, be it a product, information, or a service, qualifies as a commerce site. You may look at a giant like Amazon.com and wonder how you could compete, but let me assure you there are thousands of small sites that do. Yours could be one of them.

Commerce sites require some special considerations. First, you'll need to make visitors comfortable about doing business with you. After all, it is not like they can walk into your store to meet you face to face.

If you will be asking them to pay by credit card, you will need to make sure the transaction is securely encrypted to prevent anyone from stealing your customer's personal information.

Most ISPs have secure servers you can use. You may also need to purchase a "Site Certificate"—an electronic proof of who you are. If you intend to launch a commerce site, your ISP will be able to give you all the details about secure servers and Site Certificates.

*"You may look at a giant like Amazon.com and wonder how you could compete, but let me assure you there are thousands of small sites that do. Yours could be one of them."*

## Alphabet soup

There are a few abbreviations to become familiar with.

**URL:** Every site on the Internet has a unique name, called a Uniform Resource Locator, or URL. A resource, in web talk, is a file of some sort. It could be an HTML page, like the ones you will be making for your website, a CGI script, a .GIF or .JPG image or any other file that can be accessed using HTTP. An example of a URL is <http://www.fija.com>. If you type that address into your web browser, such as Netscape or Internet Explorer, which are user-friendly computer programs used to "browse" the Net, it will take you to the website of the Fully Informed Jury Association (FIJA).

**HTTP** stands for Hyper Text Transfer Protocol. That's nerd-speak for the set of rules computers use to talk to each other over the World Wide Web (WWW).

**CGI** is short for Common Gateway Interface, part of the HTTP set of rules computers use to pass information to a program for processing and receive back the output.

**GIF** (Graphics Interchange Format) and **JPG**, which is short for JPEG (Joint Photographic Experts Group), are image formats recognized by virtually all web browsers.

# INTERNET RESOURCES

This list of online resources is by no means complete. When you need to find something online, a good place to start is either a portal site or a search engine. Often, sites you visit will have relevant links as well.

## SOFTWARE

<b>Microsoft FrontPage</b>	<a href="http://www.microsoft.com/frontpage/">http://www.microsoft.com/frontpage/</a>
<b>SoftQuad's Hot Metal Pro</b>	<a href="http://www.hotmetalpro.com/">http://www.hotmetalpro.com/</a>
<b>NetObjects Fusion</b>	<a href="http://www.netobjects.com">http://www.netobjects.com</a>
<b>Adobe PageMill</b>	<a href="http://www.adobe.com">http://www.adobe.com</a>
<b>Hot Dog Pro</b>	<a href="http://www.sausage.com/">http://www.sausage.com/</a>
<b>CoffeeCup HTML Editor</b>	<a href="http://www.coffeecup.com/">http://www.coffeecup.com/</a>
<b>Paint Shop Pro</b>	<a href="http://www.jasc.com/psp.html">http://www.jasc.com/psp.html</a>
<b>CyberMotion 3D-Designer</b>	<a href="http://www.3d-designer.com/">http://www.3d-designer.com/</a>
<b>3D Magic</b>	<a href="http://www.forwarddesign.com/">http://www.forwarddesign.com/</a>
<b>WinFiles.com</b>	<a href="http://winfiles.cnet.com/">http://winfiles.cnet.com/</a>

## HTML

<b>A Beginner's Guide to HTML</b>	<a href="http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimerAll.html">http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimerAll.html</a>
<b>Let's Learn HTML</b>	<a href="http://www.usheen.com/html/home.html">http://www.usheen.com/html/home.html</a>
<b>Learn HTML in Seven Easy Steps</b>	<a href="http://html.digitalsea.net/">http://html.digitalsea.net/</a>
<b>A Quick Guide to HTML and CGI Scripts</b>	<a href="http://snowwhite.it.brighton.ac.uk/~mas/mas/courses/html/html.html">http://snowwhite.it.brighton.ac.uk/~mas/mas/courses/html/html.html</a>
<b>Bare Bones Guide to HTML</b>	<a href="http://werbach.com/barebones/">http://werbach.com/barebones/</a>
<b>HTML for the Complete Idiot</b>	<a href="http://www.geocities.com/SiliconValley/Campus/1924/index.html">http://www.geocities.com/SiliconValley/Campus/1924/index.html</a>
<b>HTML Made Really Easy</b>	<a href="http://www.jmarshall.com/easy/html/">http://www.jmarshall.com/easy/html/</a>

## LINK/BANNER EXCHANGES

<b>Home and Garden Banner Exchange</b>	<a href="http://www.hgbe.com/">http://www.hgbe.com/</a>
<b>Link-Box Link Exchange</b>	<a href="http://www.link-box.com/">http://www.link-box.com/</a>
<b>Link Hut</b>	<a href="http://www.linkhut.com/">http://www.linkhut.com/</a>
<b>LinkExchange Banner Network</b>	<a href="http://adnetwork.bcentral.com/">http://adnetwork.bcentral.com/</a>

## PORTALS/SEARCH ENGINES

<b>Yahoo!</b>	<a href="http://www.yahoo.com/">http://www.yahoo.com/</a>
<b>Alta Vista</b>	<a href="http://www.altavista.com/">http://www.altavista.com/</a>
<b>Lycos</b>	<a href="http://www.lycos.com/">http://www.lycos.com/</a>
<b>Hot Bot</b>	<a href="http://hotbot.lycos.com/">http://hotbot.lycos.com/</a>
<b>Excite</b>	<a href="http://www.excite.com/">http://www.excite.com/</a>
<b>GoTo.com</b>	<a href="http://www.goto.com/">http://www.goto.com/</a>
<b>Snap</b>	<a href="http://www.snap.com/">http://www.snap.com/</a>
<b>Dogpile</b>	<a href="http://www.dogpile.com/">http://www.dogpile.com/</a>
<b>infoHiway</b>	<a href="http://www.infohiway.com/way/">http://www.infohiway.com/way/</a>
<b>InfoSeek</b>	<a href="http://www.infoseek.com/">http://www.infoseek.com/</a>
<b>whatUseek</b>	<a href="http://www.whatuseek.com/">http://www.whatuseek.com/</a>

## CGI

<b>CGI Resource Index</b>	<a href="http://www.cgi-resources.com/">http://www.cgi-resources.com/</a>
<b>CGI Programming 101</b>	<a href="http://www.cgi101.com/class/">http://www.cgi101.com/class/</a>
<b>Cookbook of Canned CGIs</b>	<a href="http://www.cgi101.com/scripts/">http://www.cgi101.com/scripts/</a>
<b>CGI Made Really Easy</b>	<a href="http://www.jmarshall.com/easy/cgi/">http://www.jmarshall.com/easy/cgi/</a>
<b>Beginner's Guide to CGI Scripting</b>	<a href="http://www.lies.com/begperl/">http://www.lies.com/begperl/</a>
<b>Matt's Script Archive</b>	<a href="http://www.worldwidemart.com/scripts/">http://www.worldwidemart.com/scripts/</a>

## JAVASCRIPT

<b>Beginner's Guide to JavaScript</b>	<a href="http://www.javascriptguide.com/">http://www.javascriptguide.com/</a>
<b>Website Abstraction</b>	<a href="http://wsabstract.com/">http://wsabstract.com/</a>
<b>Dynamic Drive</b>	<a href="http://dynamicdrive.com/">http://dynamicdrive.com/</a>
<b>Ask the JavaScript Pro</b>	<a href="http://www.inquiry.com/techtips/js_pro/">http://www.inquiry.com/techtips/js_pro/</a>

## GRAPHICS

<b>Pixel Warehouse</b>	<a href="http://www.pixelwarehouse.com/">http://www.pixelwarehouse.com/</a>
<b>The Icon Bank</b>	<a href="http://www.iconbank.com/">http://www.iconbank.com/</a>
<b>ABC Free Web Graphics and Fonts</b>	<a href="http://www.abcgiant.com/">http://www.abcgiant.com/</a>
<b>Cool Graphics</b>	<a href="http://www.coolgraphics.com/">http://www.coolgraphics.com/</a>

**HTML** means HyperText Markup Language. It is the set of codes or instructions used to tell web browsers how to display the page. The beauty of HTML is that it can be read by any web browser, running on any computer, anywhere in the world.

More detailed definitions are available in many places on the web. One good source is [www.whatis.com](http://www.whatis.com).

## Domain name

As mentioned above, your website will need to have a unique name so people can find it on the web. There are usually two options, and which one you use will depend on the type of web hosting account you want, and can afford.

The first option is a "dial-up" account. These are usually the least expensive, often as low as \$10 per month, but have the fewest number of features and inclusions.

With this type of account, your "domain name" or "URL" would be something like [www.hostcompany.net/~your-name](http://www.hostcompany.net/~your-name). This kind of account is good for family pages and small information sites.

The other option is a "virtual domain" account. Costs can range from \$15 to several hundred dollars or more a month, depending upon what is included. You will need to apply for, and pay for, your own unique domain name, as in [www.yourname.com](http://www.yourname.com).

If you will be conducting business, it is important to look professional. URLs from dial-up accounts scream "amateur" to prospective customers. Imagine visiting a site called [www.hostingcompany.net/~amazon.com](http://www.hostingcompany.net/~amazon.com). Would you be comfortable spending money and giving personal credit information on that site? Neither would I. If yours will be a commerce site, your own domain name is a must.

At the present time, domain names are managed and sold by a company called Network Solutions. Your ISP will order your domain name for you and charge you a small fee for processing the order. Network Solutions will bill you separately for \$70 for the first two years. After two years, the renewal fee is currently \$35 per year.

## To code or not to code

Now that you are ready to get started, you have to make one more decision. Do you want to learn how to write HTML code yourself, or will you purchase a program that allows you to compose web pages through a WYSIWYG (what you see is what you get) display?

Microsoft FrontPage, SoftQuad's Hot Metal Pro, NetObjects Fusion, and Adobe PageMill are just a few of the many programs that allow you to create websites without having to learn HTML code.

Other programs, like Hot Dog Pro and CoffeeCup HTML Editor, make the job of writing HTML code easier with built-in macros, code checking, and other features. I use Hot Dog Pro to create backwoodshome.com because I found it easy to use when I first started doing websites. You can even use a plain text editor like Notepad to write your pages, since the actual file is nothing more than plain text with an .html extension.

Whichever way you choose to go, it will pay for you try out several programs before you buy one so you can find the one with the features you want and which you find easy to use. Where can you try them out? Many software companies offer free-trial versions you can download on the Internet. Others, like FrontPage, do not, but you may know someone who has the program and will let you try it out. You might also inquire at local schools, since they often have a variety of software available.

If you will be writing your own code, there are many books available to help you learn. I learned how to write HTML by purchasing a small reference that listed all the HTML "tags," as they are called, and what each one did. I then started playing with each to see what happened when I used it. I also spent a lot of time looking at how other people constructed their web pages.

Here's how you can do the same thing. Visit a website and find a page that appears to be fairly simple. Place your mouse cursor somewhere on the page, but not on a link, and click the right button on the mouse. A small menu will appear. One of the selections should be "View Source" or something similar. The method may vary from browser to browser. Make the selection and a new browser window will open. This window will display the HTML source code for the page. Highlight all the code with your mouse (or press CTRL+A), press CTRL+C to copy the text, then open a new document in any text editor and paste (CTRL+V) the code into it.

Now you can save the file or print it to study at your leisure. Using your HTML reference book, look up each tag to see what it does. Many tags may be modified with "attributes" which specify things like color, size, positioning, etc. It sounds much more complicated than it really is. With a little practice you will soon be writing web pages of ever increasing complexity and utility.

Now that you have an ISP, a domain name, have learned to code HTML, and have decided what kind of site you want, it is time to start constructing your homepage. For this discussion, we're going to work with a site called [www.backwoodshome.com](http://www.backwoodshome.com). Perhaps you've heard of it.

When you signed on with your ISP, they should have given, or e-mailed you, an information sheet. On that sheet should be the required name of your homepage.

Your ISP's web server will specify what name the default or entry page will be. Most of the time it is either `index.html` or `default.html`, but it could be something like `welcome.html` (or it may have an .htm extension rather than .html). You must use this name for the first page your visitors will see because the server—the computer which manages everything—always looks for this file when no page is specified.

When you type `http://www.backwoodshome.com` into your browser, your computer sends a request for a web page to the BHM server. Since no particular page was specified at the end of the request, the BHM server sends back the default page, which is "index.html." You can test this by typing in the address above and then typing in `http://www.backwoodshome.com/index.html`. Both will take you to the same place, the BHM home page.

## Speed

Good websites have two things in common: the pages load quickly and the "home page" makes people want to stay and look around a bit. Your home page is the most important one on your website, since it the first one people see when they stop by. It is imperative that it load fast and grab a web surfer's attention.

## Graphics

One secret to fast-loading pages is to minimize graphics, especially on your home page, because you want people to see it as quickly as possible.

A good rule of thumb is to make sure your home page loads in 30 seconds or less since web surfers will often move on when pages take too long to load.

Remember, too, that many people still use older, slower 28.8Kbps and even 14.4Kbps modems. Kbps means Kilobytes per second and refers to the speed at which data can travel between computers. Design and test with them in mind, too.



“A **flashy** home page might get **attention**, but the **content** is what will make a visitor want to stay, and come back.”

Small graphics like buttons or other icons are usually in GIF format, since that usually results in the smallest file size. GIF files are great for solid color images that do not have varying shades of a color. But, because GIF files are 8-bit color (256 colors), using it in a larger image will degrade image quality.

On the other hand, complex graphics like photographs are most often JPG files. JPG images support a maximum of 17.7 million colors, or 24-bit color, and can be compressed in many ways. JPG compression is preferred for photos because it results in a relatively small file size while maintaining superior image quality.

Many developers try to keep the total of all graphics on a page to less than 50K (K is short for kilobyte. A kilobyte is 1024 bytes). With today's faster modems and servers, you can sometimes stretch that up a bit, but always test your pages to see how fast they load once they are online.

There are three good strategies for dealing with situations that require many large graphic files:

First, you can display thumbnails (very small versions of the pictures) on the main page that link to the full-size picture. Thumbnails allow visitors to decide if they want to take the time to look at the large version. Because the quality of the file is not too important, thumbnails can be highly compressed, resulting in very small file sizes.

Second, you can create Progressive JPGs, which load a low resolution version of the image before it loads the full version. This makes the page display faster, but beware—many older browsers do not support this format which means those users will not be able to see the photos.

Third, you can break up the page into several pages, each of which displays only a few graphics. Links can be placed leading from page to page and back to the home page.

## Sticky pages

Sticky pages are those that make the viewer want to stay and see more. They can be complex with lots of items or quite simple with just a few well-thought-out words. As with any written work, or work of art, you should spend time thinking about what you want to say and show, and how best to do it. Your home page should be the stickiest of all, so spend extra time on it. It should let surfers know quickly what the site is about and what they will find there.

Look at the screen shot of the *BHM* home page (Figure 1).



Figure 1: The *BHM* website.

Right at the top is our masthead (1), which lets people know where they are. Below that is a short, general explanation of who we are (2).

On the far left is the navigation bar (3), which appears on every page on the website. Most titles on the navigation bar are links, and a mouse click on any one will take you to another page. With the navigation bar, no matter where you are on the site, you are always just one click away from a feature page or the home page. The navigation bar also holds a search box (4) that allows a visitor to find pages that contain a certain keyword.

When our home page is displayed, a visitor knows within seconds who we are and what we have to offer.

When I first started doing websites, I spent weeks surfing the net, looking at sites, how they were organized, where links, pictures, and text were placed. I tried to figure out why the webmaster chose to do things as he did. Often, I learned the most from the worst sites, discovering many things not to do (like using yellow text on a white background.)

After wandering around some sites, and getting frustrated because I could not find the page I wanted, I learned how important it is to have a simple, but comprehensive, navigation structure. If you make it easy for people to stay and look around, they usually will.

## Content

A flashy home page might get attention, but the content is what will make a visitor want to stay, and come back.

On the *BHM* site, the content revolves around self-reliance information. There are hundreds of articles from past issues, links to energy, building and gardening sites, and a reader's forum—all features which provide self-reliance information to our visitors.

Your content may be informational as well. It may revolve around your political or religious beliefs, or it may be the world's best collection of information about those salt shakers. Instead of information, perhaps you want a site devoted to games, or software, or music.

Whatever content you choose to include, make sure it is first rate. That means information must be accurate, software current and virus-free, and the music clear. There are far too many good sites on the web for surfers to be wasting their time on poor ones. Close attention to detail will make your site one to which people will want to return.

## Promotion

Now that your website is online, with a home page and great content, the easy part is over. Now the real work begins—the work of getting people to come to your website.

There are many ways of promoting your site. Some are expensive, some reasonably priced, and some—often some of the best—are free.

An obvious method of promotion is paid advertising. These days it seems TV, radio, and the print media are filled to overflowing with Dot Com ads. Of course, the average website owner could never afford to use mass media advertising. Fortunately, there are other alternatives.

Banner exchange networks allow small sites to get wide exposure for little or no cost. You agree to display other people's banners on your site and they display yours. All it usually involves is including some special coding on each page of your website. The code calls the banner from the network, which keeps track of how many times each has been displayed.

You may also decide to look around for other sites like yours and offer to exchange links. They link to you and you link to them. Since the Internet is built on the concept of links, this is often a good, cost-free way to generate traffic for your website.

You will definitely want to register with as many search engines as you can find. For those who don't know, a search engine is a site that indexes the content of millions of web pages, then allows visitors to search for specific pages using keywords. You will also want to register your site with the web portals, which list and categorize websites.

If you are running a commerce site, you can pay for banner advertising on other sites. You will want to look for sites

that are most likely to draw people who might be interested in your product or service. As an obvious example, a salt shaker site might look for other hobby or antique sites, but avoid teen-oriented game sites.

Word-of-mouth is always the best advertising, so make it easy for people who do find your site to tell others. The *BHM* site has a "Tell-A-Friend" page visitors can use to send a short e-mail to friends and family. Your site can do the same.

## Keeping current

The web is a fast paced, ever changing medium. As such, it is important for your website to change too. That doesn't mean constant re-designs. It does mean regular updates of information, additions of new features, and deleting old, unpopular features, etc.

People notice when a site is static for too long. They may return once or twice to look for changes, but after that they are gone forever. It doesn't have to take lots of time, just a few hours a week. But make sure your repeat visitors always find something new.

## Resources

The resources listed in the Internet Resources table will get you started. There are many others to choose from, so take your time and find the ones that are right for you.

When your new website is online, drop me a note to let me know at [webmaster@backwoodshome.com](mailto:webmaster@backwoodshome.com). And don't forget to include a link to *Backwoods Home Magazine*. Δ

### Age Difference

When I was a little boy

I told myself:

When I grow up  
I will eat cream style corn  
And drink root beer floats  
For breakfast,  
I will sleep on the couch  
Whenever I want,  
Or watch T.V. all night long.  
This morning  
I stand at the counter  
And watch the foam  
Run up over the top  
And down the sides of my glass  
And, as I grab the sponge,  
My fifteen-year-old daughter shakes her head  
And mumbles  
"My God, Dad,  
You never grew up,  
Did you?"

**John Silveira**  
**Brookings, Oregon**



# Grow your own **CELERY**

By Alice Brantley Yeager  
(Photo by James O. Yeager)

It seems odd that I don't find many gardeners growing celery. Maybe that's because there seems to be an ample supply always on hand at that wonder of wonders, the supermarket.

Mind you, I am not knocking the ability of produce departments to display everything from exotic melons to leafy salad makings, but I am questioning why more home gardens don't include one of the tastiest and most

versatile of our biennial herbs. (Biennial plants require two years to mature. First year is growth producing and second year plants die down after producing flowers and seeds.) If you think the mass-produced celery from big fields has plenty of flavor, try growing some in your own garden and notice the fuller flavor.

Celery (*Apium graveolens* from the parsley family) grows native as a marsh plant in the Temperate Zone of Europe, and records indicate it was used as far back as the 15th century as a medicine and for flavoring certain foods. However it is debatable as to whether or not much of the wild celery was eaten raw, as the stalks are said to be bitter and somewhat hollow and tough.

We have found celery easy to grow in our garden, although you'd think southwest Arkansas (Zone 8) would be a challenge for it. One of the first things you read about growing celery is that it is commercially grown on reclaimed muck lands with special equipment. Then information follows

that it does best during a long growing season in places along coastal areas or near rivers and lakes where high heat does not prevail. Also, plants will go to seed if they are exposed to several nights of below 55° F temperatures. If this isn't enough to discourage a would-be celery grower, there's that business about how to blanch celery

## Frozen celery

Clean celery and discard any blemished stalks. Cut in one-inch pieces or dice. Cover with water in non-aluminum pot and boil about three minutes. Drain (but retain the water), chill celery in ice water, and put in freezer containers or freezer bags. Cover the celery with the retained water and seal.

If you are using bags, be sure they do not leak and lay them on cookie sheets placing them in freezer until frozen. Packages may then be stacked.

## Canned celery

Wash celery stalks and cut into two-inch lengths. (If longer lengths are desired, be sure that there will be ½-inch head space in jars.) Precook in boiling water two minutes. (Do not use an aluminum pot.) Drain, retain the water, and pack the hot celery into hot jars. Add salt (½ tsp. to pints and 1 tsp. to quarts). Cover with the retained water. Add boiling water if needed to fill jars to within ½-inch of top. Adjust lids and process in pressure canner at 10 pounds pressure (240° F). Pints and quarts both require 35 minutes.

Remove jars from canner and complete seals unless closures are self-sealing.



## Celery and potato soup

2 cups coarsely chopped celery  
4 cups diced potatoes  
1 medium onion, chopped  
1 quart milk  
salt and pepper to taste  
3 Tbsp. flour  
1 Tbsp. butter or oleo  
1 egg, well beaten  
parsley for garnish

Boil celery, potatoes, and onion in a small amount of water until tender but not mushy. Add the milk, salt, and pepper (to taste) and slowly reheat.

Using a small skillet, brown the flour in the butter and blend it slowly into the potato mixture. Add a little water to the beaten egg and stir into the soup. Let it simmer for a few minutes stirring occasionally to keep it from sticking. If you have problems, you may want to use a double boiler. Serve with a garnish of freshly chopped parsley.

This recipe may be varied by adding other chopped vegetables such as carrots, broccoli, sweet peppers, etc. If you'd like to convert the recipe to a delicious chowder, try adding a small can of flaked tuna, minced clams, or whatever pleases your palate.

by using boards or earth piled up against the plants, slipping cylinders of roofing paper around them, and so on. (Blanched celery is celery that has been "bleached" by shutting it off from sunlight.) Give celery some proper attention to start with and it will practically take care of itself and, if you'll notice, no one is particularly concerned with blanching celery anymore. Maybe you'll see blanched celery in fancy gourmet restaurants, but most of us don't frequent those.

## Planting celery seeds

Celery requires a long growing season and it's best to plant the seeds indoors as early as January so plants will have time to take on some growth before transplanting to the garden. Seeds germinate in about two weeks.

I like to sprout seedlings in a controlled temperature seed starter in our

greenhouse. Seedlings are tiny, but as soon as they are large enough to be lifted from the starter I transfer them to peat pots or small styrofoam coffee cups with a pencil-sized hole punched in the bottom for drainage. These plants don't need to be left in the warm seed starter any longer than necessary as they are cool weather plants. I use a good grade potting soil such as *ferti-lome*. I never use a potting soil that is mostly sand.

If one wants to avoid the cost of commercial potting soil, good loamy garden soil can be used, but it needs to be thoroughly sterilized by baking in an oven. Simply place a medium sized baking potato in the middle of your pan or flat of dirt and bake at 375° to 400° F. How long to bake? When the potato is done, all the fungi in the soil should be done in.

The main reason for sterilizing the soil is to avoid a condition known as damping-off. When seedlings emerge from the soil and harmful organisms are present they can play havoc with the seedlings, causing them to wilt and fall over. Once this happens, there is no way you can revive the seedlings.

Soil preparation in the garden is very important to insure a good celery crop. It is a good idea to prepare the celery plot by digging in plenty of organic matter a season before planting. Compost, leaves, well-rotted manure, etc., are all desirable additives and will help the soil retain moisture as well as provide nutrients for the celery plants. Celery prefers a soil with a pH range of 6.0-6.5, working in very nicely with most other home garden plants.

Unfortunately, our famous Arkansas summers are not the most desirable for growing celery, but I have successfully raised celery by planting it in a semi-shaded spot. The plants do well as they are kept reasonably moist and well mulched. Contrary to its wild ancestor, improved celery does not have to grow in boggy places.

When danger from heavy frosts is over, young plants may be transplant-

ed to the garden as they will tolerate cool temperatures. However if an unexpected cold spell is predicted, it would be well to give them some protection by covering them with Hotkaps, row covers, flower pots, etc. Do not use anything metal such as cans or buckets. By the same token, mature plants should be well mulched and protected with row covers in the fall when temperatures are predicted in the low 20s. Below 20° F, pray for a miracle.

Tender celery plants started indoors are subject to sun scald if moved directly from inside to the garden. Sun scald is the result of a sudden change from a controlled environment to the outdoors. Leaves will appear to be seared and often the plants won't recover.

A simple method of gradually introducing the plants to outside conditions will prevent sun scald. Select a sunny spot sheltered from wind and place the

## Celery seed dressing

If you'd like something different in a salad dressing, try this recipe, one ingredient of which is celery seed. However, don't use your leftover seed from planting. You'll find celery seed in the spice section of your local grocery.

½ cup sugar  
1 tsp. dry mustard  
1 tsp. salt  
1 tsp. paprika  
¼ tsp. freshly ground black pepper  
¼ medium onion, grated  
⅓ cup table vinegar  
1 cup salad oil  
1 Tbsp. celery seed  
1 drop red food coloring

Add a little vinegar to the dry ingredients and then slowly add oil a little at a time, beating well after each addition. Add the remainder of the vinegar and celery seed. Add a drop of red food coloring to make a pink color—more if your artistic bent wants a darker color. Keep the salad dressing in a sealed jar in the refrigerator. It will keep for several days.

plant trays there for about an hour the first couple of days. Gradually increase the exposure time for a few days and there should be no further problems.

If planted in rows, celery plants should be spaced about eight inches apart. Rows should be about a foot apart to allow room for weeding. In our raised beds, plants are set the same distance apart but rows staggered. This gives good light and air circulation. We also put down a light mulch of leaves and pine needles to protect the small plants from being set awash during heavy spring rains. As the plants grow, more mulch is added to help retain moisture in the soil.

When harvesting celery, instead of pulling up the whole plant the outer stalks may be cut leaving the hearts of the plants to continue to produce new stalks. Depending on your weather, the first harvesting of stalks can take place 4-6 weeks after transplanting outdoors. Celery is at its tenderest before hot weather toughens it, so any celery destined for culinary use should be gathered while stalks are in prime condition. If you have an abundance of celery, try canning or freezing some for future use. (Canning instructions are included in this article.) Celery is one of those wonderful plants that can be used in multiple ways—salads, soups, stews, garnishes—you name it. It even shows up in comedies based on the travails of obese dieters.

A fringe benefit to growing celery is that it will thrive indoors during winter as long as it has a cool sunny location. We often start our celery plants in the fall in the greenhouse and, when the plants are large enough, use snippings from them for salads and soup garnishes.

Celery, like most plants, is fair game for some pests, and our main ones are sow bugs, snails, and slugs, all of which can reduce the quality of the plants in a hurry if allowed to go unchecked. Ten percent SEVIN carbaryl is the most effective product we have found where sow bugs are con-

## Fried celery

This recipe comes from 'way back when folks did quite a bit of batter-frying. They still do, but this is from the days of fresh eggs and Jersey milk and a real garden.

Cut crisp, clean celery stalks in three-inch pieces. Parboil until tender crisp and drain. Sprinkle them with salt and pepper, dip them in batter, and fry them in deep hot fat, then drain them on brown paper.

### Batter:

1 1/3 cups flour  
2 tsp. baking powder  
1 egg, well beaten  
salt and pepper to taste  
2/3 cup milk

Sift dry ingredients. Gradually add milk and egg. This is a good batter for frying almost any garden vegetable—squash, green tomatoes, eggplant, and others.

cerned, but it has to be used with caution as it will kill earthworms. One fairly safe way to use it is to sprinkle it along on small boards near the plants and avoid putting it directly on the soil.

Slugs and snails will succumb to diatomaceous earth (DE) if it is sprinkled where they congregate. However DE has to be applied when ground is not wet as moisture destroys its effectiveness. DE is made from fossilized diatoms, and, although it can be handled without gloves, its microscopic, needle-like texture is murder on soft-bodied snails and slugs. Earthworms are not affected.

Plants need a regular water supply in order to do their best. If there is a lack of water and growth slows down, stalks may turn tough and flavor will be altered. It's important that watering not be neglected. Dry conditions and sporadic watering can trigger a condition called black heart wherein the center of the plant can turn black and die off.

Two of the best celeries for the home garden are Giant Pascal and Golden Self-blanching. The latter, as

the name suggests, is more of a lighter green and is milder tasting than the greener varieties. It is also noted for being stringless. We like Giant Pascal as it has tall tender stalks, more flavor, and seems to be a bit hardier in our climate. There are other varieties and some, such as Utah 52-70, are recommended for shorter season areas. As with all plants, one needs to shop around and find out which ones perform best in your area.

You will immediately notice the enhancement of flavor in homegrown celery. This is due to the high percentage of organic sodium in it and it is also high in calcium, magnesium, and iron. Celery is best for you if eaten raw as cooking can destroy or lessen some of the benefits. Being about nine-tenths water, it has little value as a fuel food but is known as one of our most important regulatory vegetables due to the large amount of cellulose or fiber in the stalks.

Inasmuch as celery is used in so many culinary ways, it is not surprising that it appears on our tables in some form year-round. Notice how many recipes call for celery. If you'd like something really tasty added to your garden, give celery a try. This may be a challenge, but, when you think about it, what isn't? Δ

## SEED SOURCES

### GOLDEN SELF-BLANCHING

R. H. Shumway's  
P. O. Box 1  
Graniteville, SC 29829-0001

Vermont Bean Seed Co.  
Garden Lane  
Fair Haven, VT 05743-0250

### GIANT PASCAL

R. H. Shumway's

UTAH 52-70  
Ed Hume Seeds, Inc.  
P.O. Box 1450  
Kent, WA 98035

Pinetree Garden Seeds  
Box 300  
New Gloucester, ME 04260

# Ayoob on Firearms:

## Remembering Y2K

**A**s with the Kennedy assassination, I suspect everyone will remember where they were the moment the clock ticked out of the 1900s. January 1, 2000 found me in a Chevy Tahoe with Officer Marshall Osgood sitting stake-out on a couple of banks, one within pistol range and the other about three football fields away. Next to me in the front seat was a splendid tool for threat management at 300 yards. It was a Springfield Armory match-grade M1A semiautomatic rifle, loaded with a 20-round magazine of Federal Match 168-grain hollowpoint .308 ammunition. Atop the Springfield was a Trijicon 3-9X AccuPoint illuminated telescopic sight.

We already knew that “Y2K” had gone without a hitch everywhere else. The dispatcher announced over our radio, “Time clear, 2400 hours.” Nothing even flickered, except the faint light of distant fireworks. We joined about 700,000 other cops across the country in muttering, “Thank you, God!” The only person happier than us was probably Geraldo Rivera. His opening of Al Capone’s empty vault was no longer the anti-climax of the century.

It wasn’t just quiet, it was dead. A nervous country had pretty much locked itself in for the night waiting for the lights to go out and all the other predicted bad things to happen. Even the weather cooperated, at least where we were. A predicted blizzard vanished off the weather screen, leaving us a clear night on bare ground and a temperature closer to “chilly” than our usual bitter cold.

Like virtually every other police department, we had long before can-

celled all leave and vacation. We were out in quadruple strength on New Year’s Eve. No one kidded us about being over-prepared, or whined about the cost. Everyone was grateful that we were prepared on their behalf.

It was kind of that way on an individual level, too. Only a couple of people had teased me about preparing my home for the predicted catastrophe: extra bottled water, food including pet food, toilet paper and hygiene products, etc. I had told one, “Look, I don’t expect anything much worse than the power outages we get during big storms, at least in our area. But after nothing happens, we’re still gonna eat, we’re still gonna drink good water, we’re still gonna feed the pets, and we’re still gonna wipe our butts. It’s just gonna cost us less ‘cause we bought in bulk.”

Along the way, we all learned a lot about ourselves. We learned that it’s good to be prepared, even if the preparations aren’t needed. My friend Herman Gunther lives in Florida. He’s a financial planner by trade, a self-defense instructor by avocation. He is constantly amazed at the number of people who don’t board up their windows and tether their boats when dire hurricane warnings are broadcast. He was pleased by the number of people who did take Y2K predictions seriously enough to prepare for them.

I for one got a strong sense of family values in action. My wife, who runs the family businesses while I’m out teaching, testifying, and policing, had all the computers squared away and backup plans in place without a hitch. She had both home and office ready to run without power, water, or readily available emergency service personnel



Massad Ayoob

for an extended period of time if necessary. I was reminded why I had married her 28 years to the day before Y2K Eve, and all the more disappointed that for the first time, we would spend a wedding anniversary night apart.

My older daughter was in Texas visiting her fiancé’s family when the clock ticked into 2000. She had made certain to bring her own 9mm pistol with her along with other “personal emergency equipment.”

My younger daughter had discovered that she didn’t need expensive guns to shoot well. She learned that she could be as fast and accurate with a simple, inexpensive Ruger Mini-14 .223 carbine with iron sights, as with her expensive, custom Olympic Arms CAR-15 with its fancy C-More electronic red dot sight. Since my department issues the Mini-14 .223 and similar M-14 .308, it gave me commonality to use personally owned specimens of the same guns for home needs, and now the kid and I could use the same guns too.

She had learned a similar thing about handguns. Eighteen months before, when she was 13, she and I had become national champion parent/child team at the National Junior Handgun Championships. She had





Left: This match-grade Springfield M1A .308 semiautomatic with Trijicon scope was at author's side on patrol and stakeout on "Y2K night."

Bottom: The cats are gonna need to be fed anyway.

Right: Justine Ayoob learned she could shoot as well with an inexpensive Mini-14 (to viewer's left) as with a heavily-accessorized custom Olympic Arms CAR-15.



kind of sat on her laurels since. The family's plan had been to go to all Beretta 9mm pistols if things had gone really bad, again for commonality and interchangeability. My kid learned that she could handle this double action service auto as rapidly and skillfully as the compensated Springfield Armory match .45 she had used at the Nationals. It's not about how expensive or fancy the tools are, it's about how well the practitioner executes the craft. Like her big sister, she had started learning to drive at age 10, and her skill at the wheel had progressed to the point where I'd have been comfortable letting her drive alone if things reached an emergency level that warranted it.

Each daughter had received an M-19 gas mask for Christmas a week before. Hopefully, they'll never have to use either for anything other than making a more forcible "thank you for not smoking" statement than usual.

Me? I was reminded how good it felt to already be prepared. There wasn't that much the department needed. Mossberg semiautomatic shotguns with folding stocks and Ruger Mini-14 rifles were already in each patrol car. The M-14s are issued only for

special high-risk patrol situations, of which this was one: we had one of these .308 semiautomatics in each fleet vehicle that night. All I had to get for the troops was enough M-19 gas masks and helmets for everyone, and this is good stuff to have on hand anyway. We also had a couple of .308 precision rifles out and about that night, including mine. I'm going to see that the department has at least one such gun available per shift on a routine basis from now on.

On a non-job level, I had more of my rifles sighted in at one time than in recent memory. I usually just keep a couple in "good to go" status. I think from now on I'll try to stay at this readiness level, just for its own sake, with one .308 and one .223 zeroed and ready to unlock and grab per family

member. In the end, what does this preparedness hurt?

Meanwhile, we see a nation that has learned a lot about preparedness from the Y2K scare. Sure, there were a lot of folks who just put their heads in the sand like ostriches and said, "I'm afraid of it, so I'll just believe it can't happen." It was their nature to then cover their weak and lazy butts by saying smugly, "I knew nothing would happen, and the rest of you were paranoid."

But there are also countless thousands of Americans who have tasted the secure confidence of knowing there is food, water, a generator, and a gas grill the next time a natural or man-made emergency puts them and their loved ones at risk. There are thousands more new, responsible firearms owners who have come to like the idea of being able to protect themselves and their families. A few will sell their guns or thoughtlessly lock them away, but a whole lot more will join the *Backwoods Home* readers in a new, or renewed, appreciation of the joys of responsible, ethical self-reliance. Δ

# Nutrition and a vegetarian diet

By Jennifer Barker

**M**any people accustomed to standard American fare know that if they could manage to eat more fruits and vegetables, perhaps even shift towards a completely vegetarian diet, they would be eating healthier food. However, they wonder how they would be able to tell if they were getting enough nutrition, particularly protein, to avoid developing a deficiency.

Well, the good news is that if you eat a varied diet of whole and healthy foods, you will get all the nutrition you need. If you want to avoid all animal products, you will have to work a little harder, but if you eat even a modest amount of eggs or dairy, you don't have to count nutrients: they will all be there in adequate amounts. Let's look at different types of nutrients and see how that works.

## Protein

Protein is the first thing people worry about when they think of eating less meat. The truth is, most Americans get way more protein than they need. We've always heard that lots of protein builds strong bodies. How much protein is enough? Can too much possibly be a bad thing?

While estimates of the amount of protein needed by the average person vary widely, many reputable nutritionists agree that around 50 grams per day is enough for the average man, a little less for women, and more (relative to their size) for growing children or pregnant women. If you eat 2,000 calories a day, that is about 1 gram of protein for every 40 calories you eat. Green vegetables, grains, legumes, even potatoes all have at least that good a protein ratio. As long as a diet is rich in whole foods, it is

almost impossible to avoid getting enough protein.

What are the negative effects of getting too much protein, especially protein from meat sources? The protein in meat usually comes packaged with an equal amount of fat. Even if you carefully remove all the visible fat from

**"Vegetarians have a much lower rate of cancer and heart disease than the average American."**

your meat, it still averages as many calories from fat as it does from protein.

There are diseases associated with a diet high in animal fat. Vegetarians have a much lower rate of cancer and heart disease than the average American. It is well-documented that a vegetarian diet is associated with

lower blood pressure. Vegetarians suffer less from osteoporosis, a disease where calcium is robbed from the bones by a body needing it to metabolize protein.

Vegetable proteins may even be superior in other ways to animal proteins. Vegetable protein has been found in experiments to protect animals against arteriosclerosis when compared to animal proteins. Vegetable protein does not promote gout, as does too much animal protein. However, vegetable proteins are not perfect. No single vegetable has all the amino acids necessary to form a complete protein (one which is sufficient in the absence of other protein). It takes more than one vegetable protein to do the job.

## What about amino acids?

Each protein molecule is a long chain whose links are the smaller nitrogen-containing units called amino

## Burritos with rice and lentil chili

Don't feel limited by what's in the recipe. Use any vegetables you have. This is supposed to be a simple dish that's adaptable to what you have on hand. Makes 6 fat burritos:

$\frac{2}{3}$  cup brown rice  
 $\frac{1}{4}$  cup lentils  
 $2\frac{1}{2}$  cups stock or water  
3 cloves garlic, minced  
 $\frac{1}{2}$  tsp. minced gingerroot  
1 Tbsp. chili powder  
 $\frac{1}{2}$  tsp. cumin

1 Tbsp. tamari  
 $\frac{1}{8}$  tsp. Tabasco (optional)  
 $\frac{1}{2}$  tsp. oregano  
1 large carrot, grated coarsely  
1 cup chopped cauliflower  
6 whole wheat tortillas

Combine all ingredients except the tortillas in a medium saucepan. Bring to a boil, reduce heat, and simmer gently without stirring until the rice and lentils are tender. To check for doneness, poke a spoon to the bottom of the pot. Move the contents aside. When the liquid is gone from the bottom of the pot, the contents should be tender. If not, pour a little water straight down the hole, replace the lid, and cook a little longer. Use a little more water next time and adjust the recipe.

When the filling is done, stir well, then serve wrapped in tortillas, garnished with your choice of the following: grated cheese, sliced avocado, guacamole, lettuce, tomatoes, salsa, olives, really hot sauce, fresh cilantro—you name it. Let your imagination be your guide.

acids. The presence of sulfur and nitrogen sets proteins apart from carbohydrate molecules. Most of the approximately 20 different amino acid molecules can be converted into others, or manufactured by the body if there is a shortage of one type. However, there are eight which the body cannot synthesize, and it is necessary that foods containing them be included in the diet. These eight are called the “essential amino acids.”

One of the world’s foremost authorities on protein requirements has stated that for an adult it is difficult to obtain a mixed vegetable diet which will produce an appreciable loss of body protein without resorting to high levels of sugary foods and other essentially protein-free foods. So don’t expect to get enough protein if you eat lots of “empty calorie” foods like candy, but do expect to get it if you simply eat a variety of foods from vegetable sources.

## Turkey or meat gravy

A great way to stretch any kind of meat. When you still have some meat on the bones of your roast or fowl, cut most of it off and dice it. Refrigerate the diced meat while you make the broth. Make the broth by boiling bones or carcass and trimmings with water to cover. Add carrot tops, celery, bay leaf (if red meat), sage (if poultry), onions, and peppercorns. Simmer at least two hours. Strain, skim off excess fat (but leave a little—remember, this is substituting for butter on your potatoes). Cool the broth by placing the pot in a pan of cold water. Put a layer of diced meat in the bottom of the appropriate number of pint freezer containers. Ladle in the broth to fill. Freeze. Make the gravy as follows: Serves 3-4.

1 pint cube frozen broth  
¼ cup tamari

2 Tbsp. flour  
1½ Tbsp. cornstarch or arrowroot

Run the cube of broth under hot water, and pop it into a saucepan to melt over medium heat. Meanwhile, whisk the tamari, flour, and cornstarch together in a cup. Pour the tamari mixture into the melted broth and cook, whisking frequently, until thickened. Turn heat down to low, and let cook 5 minutes more (it will thicken a little more). Thin with water if necessary. Serve over potatoes and home-made bread with vegetables and salad.

Take your various groups of vegetable proteins: beans (legumes), grains, potatoes, nuts & seeds. Of these, it’s best to concentrate heavily

on the beans and grains, as nuts and seeds have more fat (although a healthy form of fat). Combine foods from **any two groups** in one day. You do not even need to eat them at the same meal. If inclined, season with a little dairy or a small amount of meat. Top off with fresh green or deeply-colored vegetables, and you have a diet fit for a king that will sustain the best of health.

## Stir-fried tempeh, red peppers, and snow peas

A colorful, delicious stir-fry. Tempeh is one of the few vegetable sources of vitamin B12, as the fermentation process may produce a little of the vitamin. Tempeh is a cultured soybean patty found in the freezer section of most health-food stores. Serves 4:

### Stir fry ingredients

1 8-ounce cake of tempeh  
¼ pound fresh snow peas  
2 large red bell peppers  
¼ cup peanut oil  
¼ cup raw cashews  
2 cloves garlic, minced  
2 teaspoons minced gingerroot  
1½ cups raw brown rice, cooked and ready to eat  
1 Tbsp. water

### Sauce ingredients

¼ cup tamari  
¼ cup dry sherry  
2 tsp. corn starch  
1 tsp. dark sesame oil  
a few drops hot spicy oil or Tabasco

Have all of the ingredients prepared and laid out ready to use. Slice the tempeh into ¼-inch strips, then diagonally to make bite-sized diamonds. Cut the ends off the snow peas, and cut them diagonally in bite-sized pieces if desired. Core and dice the peppers into 1-inch squares. In a small bowl or cup, combine the sauce ingredients and set aside.

Heat a wok or large skillet over medium-high heat until hot. Add the peanut oil, and when it is hot but not smoking, add the tempeh. Stir-fry a minute, then add the cashews, garlic, and gingerroot. Stir-fry for another half-minute. Now add the snow peas, peppers, and a tablespoon of water. Cover the pan and cook for 2 minutes until the vegetables are almost tender. Remove the cover and stir-fry until the water is completely evaporated. Quickly stir the tamari mixture and add. Toss and cook one minute. Serve over the rice.

## That little B-vitamin

Most vitamins are found in plentiful supply in a variety of vegetables, but there is one you cannot get reliably without eating any animal protein or supplementing, and that is vitamin B12. This vitamin is needed by the body in only the tiniest amounts, but neglecting to provide those amounts can have serious consequences. The disease associated with B12 deficiency (lack of or poor absorption) is called pernicious anemia, and it is a serious degenerative disease with unpleasant psychiatric symptoms.

However, getting enough B12 is very simple if you eat only a small amount of milk, eggs, or meat in the diet. For a vegan, someone who refrains from eating all animal prod-



## Apple-hazelnut torte

A simple-to-make nut torte, best eaten the day it is made. This recipe **Makes an 8" round torte (6-8 slices):**

### Torte ingredients:

$\frac{2}{3}$  cup ground hazelnuts\*  
 $\frac{1}{4}$  cup oil  
 $\frac{1}{2}$  cup honey  
2 eggs  
 $\frac{1}{2}$  tsp. vanilla  
 $\frac{3}{4}$  cup whole wheat pastry flour  
1 tsp. baking powder  
2 medium apples, peeled and sliced  $\frac{1}{4}$ " thick

### Topping:

1 Tbsp. oil  
1 Tbsp. honey  
 $\frac{1}{2}$  tsp. cinnamon

Preheat your oven to 350 degrees. Prepare an 8" round springform pan by oiling the sides and lining the bottom with baker's paper.

In a medium bowl, combine the ground hazelnuts, oil, honey, eggs, and vanilla. Beat well with a rotary beater until frothy. Add the flour and baking powder and continue beating until the batter is light and fluffy. Pour the batter into the springform pan.

Arrange the apple slices on the batter (they don't have to be neat—it will rise up over them). In a very small cup, combine the oil, honey, and cinnamon for the topping. Warm it over low heat or in the microwave just enough to combine. Spoon it over the top of the torte, drizzling it over all the apples.

Bake for 45-55 minutes in a preheated 350 degree oven, until the batter puffs up around the apples and is well-browned and set-up. Cool on a rack for 10 minutes before running a knife around the edges and removing the sides of the pan. Serve warm or at room temperature.

\*To grind hazelnuts, measure out the amount you need of whole nuts. Pulse them in the blender or food processor until finely ground, not worrying about small pieces that remain. Do not go too far or you will have nut butter. If you wish to skin the nuts first, you may toast them for 10 minutes in a 350 degree oven, and then rub the skins off, but it is not necessary (although it will give the torte a finer flavor).

ucts, it requires supplementation or careful attention to the source and quality of the food. Many bacteria and yeasts manufacture B12, and it is often present in fermented foods like soy tempeh.

When foods are grown with pesticides and processed for shelf-stability, all traces of the life that provides B12 are likely to have been eliminated. In cultures where food is grown organically and minimally processed, deficiencies of B12 are uncommon, even when there are no animal products in the diet.

### **A healthy diet is a many-splendored thing**

Carbohydrate, fat, and protein were once thought to be sufficient to provide all that a person needed in the way of nutrients. Nineteenth-century

doctors found out otherwise when they watched patients eat a few fruits or vegetables and make miraculous recoveries from diseases now known to be caused by vitamin deficiency. As we enter the twenty-first century, we know that there is a level beyond the recommended daily allowance (RDA) of vitamins and minerals. The RDA will maintain "good" health, but a diet lavish with fresh vegetables will provide the glow of optimum health.

You can see that it is possible to eat a healthy diet in a wide variety of ways. While I cook mostly vegetarian food at home (because my husband Lance raises a large and bountiful garden of delicious vegetables, and I am good at cooking them), I occasionally buy an organic turkey from our local grower. I cook it up, we eat a few feasts of turkey with the trimmings,

and then I process the rest into pint containers of turkey broth with a little chopped meat. A pint from the freezer will make gravy to go over a plateful of homegrown potatoes for dinner, with leftovers for the next day's lunch. If we eat that way once or twice a week, that's not very much meat.

Most of the calories in our diet consist of grains and potatoes, with seasonings of legumes, nuts and seeds, and dairy. Meat is more like another seasoning than a main-dish food. We eat large salads, and our treats and snacks are rarely the empty-calorie kind—even our desserts are made with whole-grains and home-grown fruit.  $\Delta$

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# Letters

(Dear Readers - Thank you for writing to Backwoods Home Magazine. The opinions and suggestions we receive from our readers are very important to us. We regret that we are no longer able to print or individually respond to every letter received due to the volume. We do read every letter received, and pass them along to the editor or writer concerned. We print a selection from our mail that best represents the views and concerns of our readers.  
— The Editors)

## Constitution book

*Would you please send me 10 copies of the Constitution book.*

*Thanks for making it available. I've got four guys that work for me, all reasonably intelligent, with strong political opinions—but not one of them knows what the hell is in the Constitution.*

*I'm thinking of firing them all if they don't vote Libertarian in Nov.*

Joseph LeBlanc, Philadelphia, PA

I would. We've sent out nearly 10,000 copies of our 58-page pocket Constitution so far. It's the most successful item we've ever carried.  
— Dave

## Irreverent jokes

*I cannot thank you enough! I am thoroughly enjoying my first issue of Backwoods Home Magazine...though my husband thought eating the wild foods section was crazy. That is, right up until our neighbors took us out to pick wild asparagus. Talk about timely!*

*Anyway, I also wanted to thank you so very, very much for the irreverent jokes forum. My dad (age 77 years young) was just diagnosed with prostate cancer. Needless to say, his spirits sank tremendously. Since I began sending him an irreverent joke a day and telling a few over the phone, his sense of humor has really returned! They were JUST what the doctor ordered...and I should know*

*as one of his doctors is my brother and he LOVES those jokes too! Please don't ever drop them. Irreverent they may be, but they are HILARIOUS too!!!*

M. Costa

kmcosta@dimensione.com

## Y2K

*Relieved to see that we made it through the Y2K situation with only minor problems so far. I tried to prepare for the worst and hope and pray for the best. Guess the prayers worked. I do think it got our country off its butt and into getting things fixed a lot faster than I ever thought it would. I personally don't regret a single thing we purchased for the possible situation. Nothing we bought can't be used on down line in daily life. Hey, I shouldn't have to purchase toilet paper till June.*

Rod Summitt, Oaktown, IN

## Firearms articles

*I have been enjoying your magazine for over a year now and hope to keep enjoying it for years to come. My lifestyle is still too close to urban in nature for me, but I hope to come a whole lot closer to an independent rural existence in the next few years as I prepare to retire from punching someone else's clock.*

*The independent political and ethical views expressed by you, John Silveira and others in BHM are like finding a clear brook to a man dying of thirst. Particularly refreshing are your articles on our right to own and bear firearms. We need to hear more people saying "I own and use firearms, and I don't apologize for them." We are fighting an uphill battle to defend this keystone right today, and an apologetic defensive posture is a sure way to lose it.*

*We need always remember that the anti-gun sentiment is fueled by two distinctly different groups. Firstly, there is the steadily growing group of our urban neighbors who are ever farther removed from the ownership and use of firearms, making them more susceptible to the irrational anti-gun rhetoric of the "paranoid, gun-grabbing ignoramuses" you referred to in your editorial in issue 62. Secondly, there is that group, the Clintons and Schumers, far more insidious than the first.*

*I am increasingly convinced that the political leaders, media pundits and police officers who scream for more and more gun control are not mistaken in their views. They are lying through their teeth. They know the overwhelming facts supporting free ownership and use of guns as a deterrent to crime, but they still scream for more gun control. Because they want you and me disarmed. Because they need you and me disarmed. Because they want to be the only kids on the block with guns. Such people are not afraid of the gang members, hoods and petty crooks who have guns. They need those people out there, because fear of them makes more and more of our honest neighbors beg to have their freedoms taken away for a perceived sense of security. The politicians, the Clintons and Schumers, know that the petty criminals can be easily mopped up any time they want to do it, after the honest citizens are disarmed. They are not afraid of petty crooks with guns but they are terrified of armed honest citizens because we can keep them from achieving the power they really crave, the power to control the lives of all of us.*

*Thank you Dave Duffy, for saying "I don't apologize for my guns." Thank you, John Silveira, for reminding us that our constitutional guarantee of the freedom to own and bear arms does not reside in the second amendment, but in the body of the constitution itself, which very clearly*



proscribes the federal government from exercising any power not specifically granted to it. Thank you, Massad Ayoob, for simply saying that homeowners should arm themselves against violent intruders and for giving valuable instructions for how best to do that.

Increasingly, we need to quietly stand and say, "I don't apologize for having and using guns. I am an American and you may not rightly deprive me of them." If we don't, this will only be the first of our rights to be usurped by those who are not at all mistaken in their desire for more gun control.

John White, Chardon, OH  
Johnw11@earthlink.net

I'm sure you'll receive a deluge of self-protection stories after issue 62, but I figured I'd send mine, too, in hopes that others will feel a little more support in this age of rabid anti-gun sentiment.

Two years ago, I received my concealed carry permit. I'm 33, and have been shooting since I was 12, the daughter of a police officer, so I have had many years experience with firearms. A year after receiving my permit, three young men entered my workplace and attempted to rob it. My employer was assaulted, but before the perpetrators got to the back office where I was working, I was able to pull my .357 Colt out of my purse. (It all happened so fast that there was no time to call the police, until it was all over.) I was able to see that they did not have guns in their hands; they had three foot long lengths of steel pipe. As they burst through the locked office door, I had my gun pointed directly at them. After some screaming back and forth in which there were several threats to "F---ing kill" me, and several pieces of office equipment were smashed by their steel pipes, I would stop them if necessary (all the while praying "God, let them leave!" over and over

to myself). They left, thank God. I got their license plate number and they were later apprehended. Although all three were under 20, two of them already had long, violent criminal records.

I do thank God that I didn't have to pull the trigger, but I am also thankful that I had means to protect myself. My employer was knocked unconscious and had a fractured skull. I don't believe that these three thugs would have treated me any better; probably to the contrary as I am a woman. I am also outraged and bewildered by the attitudes of anti-gun advocates. They believe removing all guns from U.S. citizens will solve crime. Guess what? IT DOESN'T! Disarming law abiding citizens, in essence making them sitting ducks for criminals, is absolutely unacceptable, and a clear violation of the constitutional right to pursue life and liberty, not to mention the Second Amendment. Am I supposed to give up my life to some piece of human scum who decides that he wants to be "bad" and kill me? Never. My life means too much to me and my family. It apparently does not hold much value with the anti-gun advocates.

I have long since stopped apologizing for carrying a gun. Whenever a seemingly well-meaning individual (frequently female) starts harping on how unsafe guns are, I trot out my little story, and ask them, "How would you like to have been in my situation? Would you have let them do whatever they wanted to you? Rape you, beat you with steel pipes, maybe kill you?" I have yet to receive an answer. Thanks for taking time to read this. Keep up the good work, we need your kind of support.

Hannah Maria Hall, New Caney, TX

I am a subscriber and a fan of yours. I am most grateful for your editorial in #62. You did not mention "Gun Control" once. The people of this nation have been

"Brainwashed" into using this term by the anti-gun nuts. The last thing in their agenda is "Gun Control". The goal is most obvious—People Control! They have used "Gun Control" so effectively as to have everyone believe that is the goal, tain't so. People is what they really want to control.

John Parker, Junction, TX

## Applause

I'm writing with great praise. Most of my life, and all of my married life, I have worked hard to be as self-reliant as one can be. It is my opinion that one trades family for store bought things.

I now have five children ages one to twelve, all homeschooled, all garden fed. If I chose not to work outside the home, I must work inside. About a year ago I came across your magazine in our library. I've enjoyed every one they still had and now must have a subscription of my own. I think that receiving your magazine while still new would be a greater pleasure. You should know even editions not yet printed have 4 or 5 people placing holds on it. That is 4 or 5 people before me.

Mariette Charvet, Olympia, WA

Love your magazine!! Found out about it at our library & had to get a subscription. You have no idea how much we cherish good reading material—especially during the long dark nights of winter.

We built our homestead ourselves—not finished yet (do you ever really finish?) We have no choice but to be very prepared in all areas due to our remoteness & severe winters.

We semi-subsist: hunt, fish & dip-net, pick berries, grow vegies, raise poultry for meat & eggs.

Mary Ann Jehlen, Willow, AK

I wish I could subscribe for three years. Unfortunately money is very tight this year and I've let go all my

*subscriptions as well as outside entertainment go. All except your magazine which is worth more than all the dinners, movies or other forms of entertainment out there. Keep up the good work. Your student and devoted reader.*

Pat Beyer, Chucky, TN

## **Moving back...**

*Just wanted to tell you how much I enjoy your magazine. When it arrives, everything else goes on hold for me while I sit and devour the thing from cover-to-cover. I am stuck living in the big city for now but I dream of the day when I can simplify my life and move to a more rural environment. A close friend of mine grew up in the Smoky Mountains and became an engineer. He worked all over the world and made lots of money. When I met him, he lived on 160 acres outside of Elgin, Oregon with a telephone line as the only outside utility service coming into his place. We used to sit on the porch sipping some homemade brandy and watching the elk come out into the meadow and he'd joke about how he spent his entire working life saving to move back into the mountains which he had worked so hard to get out of in his youth. I sometimes think I am on the same path he walked.*

Stephen Barkley, Portland, OR

*I have never felt the need to write to a publication before now. I regret only that it has taken me this long to do so. I would like to extend my heartfelt thanks to all of you for the great magazine you put out.*

*I was introduced to BHM by happenstance in the summer of 1994 while perusing through the library. I immediately realized that it was something I wanted (needed?) regularly. I ordered a subscription for my fiancé under the pretense of a birthday present. Today I am still the first one to read it when it comes.*

*We recently purchased the six anthologies with my Christmas bonus from work. I commend you on how quickly we received it. I expected a wait of six to eight weeks and we received it in less than two. Way to go BHM!*

*We moved to Alaska to follow a dream of being able to "homestead" as in the days gone by. We bought twenty-six acres this past summer and managed to get a driveway and barn site cut in before snowfall. Our property is road accessible since I still work in town for now, but at the end of a dead end road surrounded by many square miles of state and borough land. We hope to gradually phase out the in town work as we become more self sufficient.*

*We spend many hours poring through our back issues (and now our anthologies) for ideas and answers to many questions. The irreverent joke page is a classic, and the first thing I go to.*

*I apologize for being long winded, I just want you all to know how much we enjoy your magazine and look forward to it.*

Travis & Leslie Hallifax, Willow, AK

## **Drug legalization**

*I'm sure you're going to get a lot of flak about your drug legalization opinion. Having been on both side of the coin let me put in my two cents worth.*

*I used drugs for several years (mostly pot and speed) and while I managed to stay out of the criminal justice system it was mostly by dumb luck. There came a point where I realized that "the going up was not worth the coming down" and I just put it all down and left it alone.*

*I now consider myself a conservative but I realize that drugs are more of a moral problem than a legal one. Prostitution and alcohol have never been erased and neither will drugs.*

*Prohibition was an abject failure and resulted in some of the first gun*

*laws being passed. Prior to the "gangster era" one could own just about any type of weapon without any paperwork. When the Thompson sub-machine gun became the weapon of choice among bootleggers (they often referred to it as "the Chicago type-writer") the government started us down the steep (and slippery) slope of gun control.*

*Then, as now, the media played a big part in the vilification of firearms. The gangster movies of that era were full of machine gun toting villains mowing down their rivals (and often innocent bystanders) in hails of gunfire. The fact that many of these weapons were stolen from police and National Guard armories did not get a lot of press.*

*Law enforcement agencies at all levels were busy attempting to enforce an unpopular ban on a once legal substance. In the meantime elected officials continued to pass more and more restrictive laws that infringed on our rights. Al Capone, one of the most notorious gangsters of the era, was never convicted of any violent offenses, he went to prison for tax evasion. Today if an agency suspects you of being involved in the drug trade they go after your assets. Get caught with a large sum of cash on you and see how long it takes to get it back if it is seized.*

*I drive a commercial vehicle and frequently see people pulled over along the highways with all their luggage piled up on the ground and a couple of car loads of police searching them. I'm sure many of these people fit some type of "drug profile" and the police were on a fishing expedition. If even a minute amount of drugs were found those people could lose their vehicle, any large sums of cash found and their freedom.*

*There is money in the drug business. Ask any lawyer that specializes in drug cases. If you have a lot of money you can buy your way out of a drug case. Look at many small police*

departments today and the vehicles and equipment they have. This equipment is either seized and used by the department or bought with forfeited money or grant money from the federal government (our tax dollars).

Legalization of drugs is not likely for several reasons.

First, it would be an admission by the powers that be that the whole war on drugs has been a failure. When was the last time our government admitted it made a mistake?

Second, it would slow the flow of money to the trial lawyers and grant recipients. There would be less money for the ever increasing budgets of police departments with their Ninja suited adrenalin junkies.

Third, politicians would have one less program to exercise control over otherwise (for the most part) law abiding citizens. The drug war is about power and controlling people, not drugs.

I am not advocating a nation of junkies. The big fear is that legalization will cause everybody and his brother to go out and immediately start smoking, snorting or shooting up their drug of choice. Alcohol and tobacco are legal now but there are millions of people who neither drink or smoke. If someone wants to use drugs they will do so regardless of existing laws. Life is full of choices.

The answer that might make the most sense (don't look for this to happen) is decriminalization. Spend the money that is being used to strip us of our rights to treat those who just can't say no.

Make it hard to be a drug user. Just because it's legal doesn't mean it has to be acceptable. All employers, federal, state, local and private sector are within their rights to deny employment to drug users by pre-employment screening and random testing. They also have the right to fire drug abusers who refuse to clean up. If you want to be a junkie in a

low-end, low-wage job that doesn't drug test, that's your choice.

No junkies on public assistance unless enrolled in a treatment program. If you get a check from the government they have the right to test you and kick you off for being a user. No disability payments for self-induced drug problems or injuries. You can be a junkie, just don't expect taxpayers to foot the bill.

No education assistance for abusers. Anyone getting student aid from private or public funds would be subject to loss of that aid for drug use. If you want to be an ignorant, uneducated stoner that's your choice. No drivers license for repeat DUI offenders, booze or dope. You can be a junkie, just don't expect intelligent humans to share the road with you. There would still be criminal activity connected to drugs but with less people in jail for possession and small time dealing there would be more room in prison for violent offenders. Stealing to support a drug habit is still stealing.

Put the money now used to equip and train the "Ninja squads" toward prevention and treatment programs.

Regulate the drug trade and tax it. Use the tax money for the prevention and treatment programs. Most of the anti-drug infrastructure could easily be adapted to do this. This would protect the jobs of the bureaucrats most likely to object to decriminalization.

Again, the drug war is not about drugs, it's about how much power we are willing to allow the government to have over our lives.

Charles Evans, cevans9@tds.net

## Planting small seeds

**PLANTING TIP:** When planting small seeds (like tobacco) I use powder dribbler, (borrowed from the loading bench), it only drops a few seeds at a time. By using a piece of white paper as a back drop you can see the super small seeds dribble into

the starter beds. It is fast and easy. I have used this method for years.

L Davison, CAVE93@aol.com

## Dealing with ticks

I write about your article on "Dealing with Ticks" March/April, 2000 issue. A little added info that is very simple, seems to work very well and very cost effective. I ran across this idea while taking a High Power Rifle Marksmanship course. In this course you were expected to lay on the ground in the prone position for 20 minutes or longer during one course of fire. This is done in prime tick country, semi west Texas (Mineral Wells, TX). To prevent ticks, our instructor told us to fill an old sock with sulphur and tie the top in a knot. While getting dressed, pat yourself with this sock, and pat your outer clothing once you are dressed. We spent many hours sitting, standing, and lying on the ground in areas heavy with ticks without a single tick showing up. Simple, very effective, and time tested.

Evan Cowart, evan@airmail.net

## George Mason

Having just finished reading "The Greatest American Who Was Never President," I felt compelled to write to thank John Silveira, the author, O. E. MacDougal, his poker-playing friend (and astute historian) from southern California, and Backwoods Home Magazine for one of the finest articles about George Mason that I've ever encountered outside of a scholarly publication. And, as the Director of Gunston Hall Plantation, an institution whose mission is "to preserve, interpret, and promote this 18th-century historic site in order to educate the public about the international significance of its owner, George Mason, for his unique contribution to the universal cause of



human rights," I've had the opportunity to read most such articles.

You and your readers may be interested in the fact we will be breaking ground this summer on a national memorial to George Mason in Washington, D.C., bringing broader recognition, at last, to an important American whose contributions to our system of government have for too long been overlooked. The memorial will be located between those honoring Thomas Jefferson and Franklin Roosevelt, and appropriately enough it will be the first memorial in Area I (the monumental core) of Washington to be erected to an individual who did not serve as President of the U.S.

The memorial to George Mason, like the man it honors, will be modest in scale. The central element will consist of a statue of Mason, approximately one-third larger than life, seated beneath a curving arbor and flanked by stone walls approximately four feet high and twelve feet long. On those walls will be carved some of Mason's most enduring words. It was the words that Mason wrote and spoke, the ideas and ideals that they conveyed, and the changes they helped to spark that earned him the honor of being memorialized in such a prominent location.

Thomas A. Lainhoff  
Lainhoff@GunstonHall.org

## Poison ivy

I love your magazine. I don't always agree with everything you say, but you have to tell it as you see it, not how you think all your readers will like hearing.

One correction in issue 61, the Poison Ivy article; urushiol is broken down in the digestive tract of goats. Goats love to eat poison ivy and love to reach up in trees to browse. They will help to keep poison ivy under control, but also may harm the tree itself, so don't let

them eat it out of your orchard or ornamental trees. While the milk is safe, the person milking must be cautious if the goats have been browsing in poison ivy. Like dogs, the goats can carry the oil on their coats.

I am not seriously affected by urushiol, so my preferred method of eradication is to pull it. I have to choose between dangerous chemicals or a rash. I mow it in the yard and it has disappeared. You have to mow about every week to keep the leaves off the plants. Once the grass fills in thickly, it will smother the ivy, so mow a few inches high to keep the grass in good condition.

Tammy N. Lehn, Enon Valley, PA

## Evolution Article

I normally don't write magazines, but out of respect, I've decided to write yours. I met BHM in a grocery store back during the "Great Gulf Shootout" ten years ago. I learned early on to respect the staff, both on the info they sent out, and also for their attitude toward our rapidly developing Empire.

For personal reasons, I haven't moved to a homestead of my own. My ideal would be a 6-10 acre plot outside of a town or small city. A town job for a modicum of "paper-bux," but an increasing reliance on the land and friends is my goal.

Politically, I am "somewhere right of Genghis Khan" (ha-ha). Actually, I am either a conservative libertarian, or more probably, a libertarian conservative.

Religiously, I am a confessional Lutheran. That puts me as being more conservative than the Moral Majority, but with a strong distrust of people using religious teaching to beat people into goodness. Religion works only when it changes your heart, not your actions.

I must however chide John Silveira, but I promise to be gentle.

In the Jan-Feb 2000 issue, he wrote a rather standard feature on "the origin of the earth". For his effort, he was lambasted for heretical views, which is rather to be expected. He always gets in trouble in religious topics.

Please don't defend him with the old saw, "I'm only writing 'scientific' facts". Stephen Jay Gould of Harvard Univ. is definitely not a religious nut, but even he admits the fossil record does not account for the beautiful pictures of "gradual evolution". "Indeed most phyla appeared explosively."

The fossil record is, to be honest, ambiguous. No real hard evidence exists, only our puny attempts to play dot-to-dot games. So every origin-of-the-earth explanation is a religious treatise, based on faith in one source or another.

One thing that saddens me is the reaction from readers. Though I disagree with John Silveira's article, I would fight for his right to write it. Because in America, we should only fear enforced silence. I hope you can find a good writer like Erick von Fange or Dr. Whitcomb to provide balance. And for heavens sake, a Christian (me) always feels welcome in BHM. I learn like I once learned from John Shuttleworth, Jd Belanger and Robert Rodale. Please keep my friends coming; especially: John Silveira, Massad Ayoob, J. D. Hooker, Richard Blunt (I'm not sure in which order).

I love your magazine. Don't change anymore than you have to.

Robert Fitz, Burlington, KS

I would like to start by saying that I have enjoyed your magazine very much for several years, but John Silveira's article in the Jan/Feb issue was way off base and obviously not based on modern scientific discoveries.

Modern science has provided overwhelming evidence that the

earth was “designed and created” and is in fact much younger than the myth of evolution would have us believe, so much evidence in fact that you would have to devote an entire issue to cover this subject. I realize that this is not practical so I would like to offer a few web sites and publications that offer the truth backed up by scientific fact.

If you watch a video from Alpha Productions titled “The Young Age Of The Earth” you will see scientific evidence that the earth is very young. As an example a wooden dowel is turned to coal in a few weeks in the laboratory debunking the theory that coal takes millions of years to make. In a coal mine in Utah you can see pictures of a tree that has been turned into coal that runs through two of these layers that are supposedly millions of years apart.

A website called “Jesus Dinosaurs and More” provides evidence that some species of dinosaurs still exist today, authenticated by eye witnesses, as well as scientific evidence that the earth was “created” not evolved.

The Koininia House website “khouse.org” has numerous audio tapes that present modern scientific evidence from microbiology to astronomy that the earth was designed and created specifically for the human race in a much shorter time period than the evolutionists would have you believe. The parameters of these evidences of design in some cases are so precise that a variation of less than one percent would make life as we know it impossible. You have stated that you are not in the business of promoting religion or publishing religious articles, but I think that you should be in the business of printing the “truth” not theory that won’t stand up to scientific scrutiny.

Doug Mitchell, Orange, CA

## Send in the Waco Killers

During the late ’50s, when I was pursuing my college education, each book in the University Book Store contained a bookmark stating the price of the book, and the sage comment, ‘One idea in this book will repay you’, but in reverse order of my description.

Truth to tell, I didn’t garner many ideas from those books. Learning, yes, sometimes useful and sometimes wasted effort. I get ideas from BHM!!

The lady from Montgomery Center, VT, must have known someone from that town in order to have found that tiny enlightened spot in northern Vermont. I lived in the NE Kingdom for 16 years, skied Jay Peak a lot until I got into horses, spent many nights in Montgomery Ctr., and still have friends there.

More to the point, “Send in the Waco Killers” defined happenings in our society that we’re aware of, put perhaps don’t see as clearly as we need to. The book fills in a lot of blanks. It’s a must read.

Lastly, BHM as, in a sense, put me in contact with a group of people, a segment of our society, who are concerned, scared, angry, about the direction the U.S. Government is taking. It is out of control. I don’t like to think about it in this manner, but am afraid we may be approaching the time when it’s necessary “to keep yer powder dry”.

Bill Helm, Afton, WY

## Website

Hi, just thought I’d write and say how much I enjoy your website. Can’t manage a subscription right now but get a lot of good out of the website. That’s all I wanted so keep up good work.

Alan Buck, gandalf@willinet.net

Just wanted to let you know that you have an awesome web site...I never knew that warm fuzzy people

also had a sense of humour!!! (I love the jokes section—as politically incorrect as they are!)

As non-commercial as I am, your website has tempted me to find your magazine (after all, if your website is this good, your magazine must be outstanding!)...

Trevor Dagilis  
dagilis@civil.queensu.ca

I am a long-time curmudgeon and brand new subscriber (just this past week). You might be amused to know that what really caught my attention on your website was the fact that you carry the columns of an old friend of mine (Walter Williams), a new e-mail acquaintance (Vin S) and many others I respect and enjoy. After reading a number of in-house editorials, I knew we were on the same wavelength. Combined with my desire to get out, my subscription was a natural.

My own perspective is almost like that of Joe Sobran: the culture is inexorably broken at every level, and cannot be repaired in a secular sense. I see the cities as seething waiting only a torch to ignite them. After four generations of liberalism’s march to dominance, any place with a meaningful concentration of its (liberalism’s) product is a very dangerous place indeed. I feel surrounded by the ignorant, the ill-advised, and the entitled. Given the polity’s craven failure to challenge the corrosive welfare state (just the opposite in fact—they encourage it and welcome it with open arms), I have come reluctantly to conclude that things cannot be fixed in any meaningful way and a societal train wreck is inevitable. I only wish to be far from the accident scene. Hence my own strategy of leaving in a few years a post at the very pinnacle of a profession I love for

*the contemplative fulfillment (and safety) of life in the slow lane.*

*Being near the top of the federal arts establishment food chain, virtually all of my colleagues view me, as a conservative/libertarian and contrarian, as an escapee for the X-Files. So be it. I wonder if they will think the same in ten years, when I am securely ensconced in East Armpit, VA and they watch the flames lick at the Logic-Free Zone (my own moniker for Washington DC that seems to be making the rounds of talk radio thanks to Walter's stints on Rush and my buddy Brian Wilson, the libertarian talkmeister. Also, I think my friends Steve Moore and Doug Bandow from CATO use it).*

*That all said, I look forward to gathering information from your publication in the coming years. Time to sign off, as I have real estate ads to plow through in preparation for our first serious exploration in the boonies.*

Don Williams  
crusher250@email.msn.com

## **Crybabies**

*I got issue #62 today, and as I always do, I dropped everything and sat down to do some serious reading.*

*I like the wind power story. I've been thinking about what it would take to set one up here.*

*The wind never stops blowing on the NW Colorado plateau. I think it would work quite well.*

*Your commentary was bullseye on the mark. The NRA seems to be the only entity fighting the anti's in D.C. Home protection is the name of the game. Although I like 9mm over a 45 cal. and mini 30 over mini 14. 9mm hold more and mini 30 takes the same ammo as my AK47 I also like a Mossberg 500 police shotgun. (Holds 8—2¾)*

*But the real reason I'm writing is about some of the letters people*

*wrote to you. Have you ever seen more crybabies? I mean the home-schoolers bitch about John's article on evolution.*

*If God created our solar system 4.6 billion years ago, why did he wait 4.59997 billion years to inhabit it with humans?*

*Maybe they should be teaching their children to think for themselves. The last thing this country needs is more sheep. Big brother would love that. I do stand up for their right to religious freedom, as long as they don't preach to me. Hey—Bible thumpers it's not just your magazine—get a life.*

*And then there is the Hawaii haters. One man's junk is another man's treasure. Just because you guys had a bad time there, doesn't mean it could be that way for everyone. You don't hear me bitching about 6 months of winter where I live, or the fact that when winter rolls around, the town rolls up the sidewalks 'til May. When life throws me lemons, you'll find me sitting in the shade, reading BHM, with as much lemonade as I can handle. I'll just have to haul more water.*

*Keep up the great work Dave, do it the way you want to. Don't change a thing.*

*P.S. If you print this...use my name unlike Joe Schmoe from Anywhere, OK who didn't want to be identified because of what people might think, I could give a rats ass what people think about me. My opinion is the only one that counts. Self esteem problem? I think not!*

Mike Tuttle, Craig, CO

## **Religious editor**

*Just had to reply to Micheal Briggs letter (#61) concerning your need for a "religious editor"—Oh please!!*

*I believe Dave Duffy has done his job—by starting this magazine and given us a forum in which to edu-*

*cate and learn from each other on Self-reliance and freedom. I can only guess at his struggle in the early years; in a garage with a new magazine to publish and a little daughter as his only help. How many deep nights he must have struggled, with his head resting in his hands—asking for help from a power greater than himself.*

*I take serious offense at your (2) statement (religious bigotry at best) that others are not acquainted with the finer points of Christian religion. Go start a church.*

*Point (1) if this magazine gets anymore balanced it'd be illegal.*

*There are numerous Christian religious groups, compounds that might want your input.*

*But—remember there was Ruby Ridge—David Koresh—they were minding their own business—religious and homeschooling.*

*My Bible says that a man that fails to provide for his family is an infidel. BHM shows 1,000's of ways to do that.*

*Go pedal your hypocrisy somewhere else.*

*The real spiritual talent of BHM is gone—it was in the form of Don Childers the art editor. He captured the spirit of our lives on paper.*

*I'm a God-believing widow—Christians should lead by loving example, not force feeding beliefs—most Christian churches can't even decide on doctrine or agree.*

*BHM would fold up within 90 days—religious editor, Ha!!*

*Thanks again for being what 97% of us need in this time, in this country of religious freedom, while some are left.*

Anne Dodds, Bedias, TX

## **Time to honk back**

*I have been watching the world for 4 decades now and I see a great deal of the mistakes we constantly make. 20 years ago we became worried about drunk driving.*



*MADD went after the drunk drivers and raised awareness about the dangers of drinking.*

*A mere 2 decades later we have the problem with youth violence. Instead of attacking the kids and their problems, government goes after gun dealers. Yes we need better awareness of gun safety and more than that we need humanity. But we did not outlaw cars or alcohol in the 70s so why are we so backwards and blind today?*

*It is the minority who wish to disarm America, and we must remember a forgotten reason for having the right to have guns. We as a nation have been unscathed by war on our soil for almost a century (except Pearl Harbor). Why would anyone attack a country where each and every home might be a fortress unto itself?*

*When we, the last great super power of the globe, are internally disarmed, we will become a target for all the world including our own government. Freedom will go the way common sense has over the last few decades.*

*The press, politicians and special interest groups are such a small part of our nation, yet they make so much noise it is like a go-cart bullying a semi.*

*I think it is time for us, the quiet and apathetic many, to honk back in their face. Yes, let them all know how you feel and what is really important, and let's get back to doing what is right.*

Ken Abrahamson, KEASRA@aol.com

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# The last word

## Three honest words: "I don't know"

**By John Silveira**

As we enter another political campaign season I'm reminded of my three favorite words: "I don't know."

Some years back, when I lived in southern California, I met the best general practitioner I'm ever likely to know: Doctor Jon Overholt. What made him so different from the other physicians I have known? He had capably administered the health of both me and my family, but there are thousands of other MDs who do the same for their patients. Still, there was something that set him apart, and I can best illustrate it with a conversation I had with him one day in his office. It went something like this:

Doctor: "We discovered excess scar tissue that had to be removed before we could take your gall bladder out. You had had appendicitis at some time in your life, it had burst, and your body walled the area off with scar tissue."

Me: "I thought you died when your appendix burst and you went untreated."

Doctor: "Not necessarily. You probably didn't even know it happened."

Me (after some thought): "Then am I a candidate for appendicitis again?"

Doctor (after more thought): "I don't know, but I can find out, if you'd like."

And those were the words that made me realize I could trust him—I *don't know*. I'd never known a doctor to say them before, and frankly I was surprised. By admitting ignorance, he put whatever else he told me into clearer perspective. I knew now I could trust anything else he said. I later found that he never pretended to know something when he didn't, and that he was always willing to qualify his judgements when it was appropriate.

Here, at the dawn of the Information Age, almost no one will admit to ignorance in their "field of expertise." It is perceived as a sign of weakness. For many, men in particular, admitting ignorance is like confessing athletic weakness or saying you're lousy in bed. So today, when information is making millionaires of many and changing our civilization completely, we not only pretend to be knowledgeable, we do it with certainty.

But certainty has always made me uncomfortable. From first grade to high school I recall teachers who asked questions, then reprimanded students for *the way they answered*.

Teacher: "What's the capital of New Mexico?"

Student: "Santa Fe?"

Teacher: "Are you asking me or telling me?"

Student: "I'm telling you."

Teacher: "Then tell me. Don't ask me if that's the answer."

Student (with conviction in her voice): "It's Santa Fe."

Teacher: "When you give an answer, state it as a fact, not as a question. Do you all understand?"

We'd nod. I don't know what the purpose was. Stating an answer with a tone of certainty, when you are, in fact, unsure, borders on dishonesty. Giving an answer when you really don't know is patently dishonest.

Today, those on the frontiers of this new age, i.e., the computer geeks, are among the worst at having to supply an answer to every question. I'm not saying they don't have a fair share of computer expertise, or that they aren't well informed and knowledgeable. But there is a compulsion among them to act as if they know everything about computers, software, and the Internet, to *always* provide an answer, and to deliver it with *conviction*. But sometimes they really don't know the right answer and the problem is that I cannot tell from the tones of their voices when they're blowing it out their hats.

On the other hand, the very best computer person I know is another southern Californian, the fellow who builds the *BHM* computers and wrote our first subscriber database, Tim Green. But do I think he knows more about computers than everyone else? No. What I do know is that not only is he competent, but when I ask him a question and he doesn't know the answer, he says, "I don't know." He often offers to find out, if it's important to me. But when he tells me something with assurance, I can safely assume that he knows what he's talking about. It's a precious confidence I have in him.

We are now coming onto the campaign season. Politicians, of course, are different from doctors, computer geeks, and almost everyone else. They not only feel compelled to have an answer for every question, but for fear of appearing stupid they often avoid answering a question altogether and answer a question that sounds something like it instead.

Reporter: "Do you advocate censoring the Internet?"

Politician: "I believe we should all act responsibly. Next question?"

Well, that's nice. Everyone will agree that we should act responsibly, whatever 'acting responsibly' means, but what happened to the the question about the First Amendment? It was a yes or no question. Does he even know what the First Amendment is? I can't tell.

So I'm listening to the candidates this year and I'm not voting for anyone who has all the answers. I'm not going to vote for anyone who cannot give a straight answer to a straight question, or who cannot say those three magic words, "I don't know," if they don't know. Instead, I'll write in Dr. Jon Overholt or Tim Green on my ballot. At least then I'll know what I'm getting. Δ

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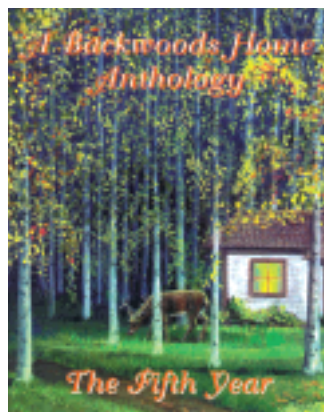
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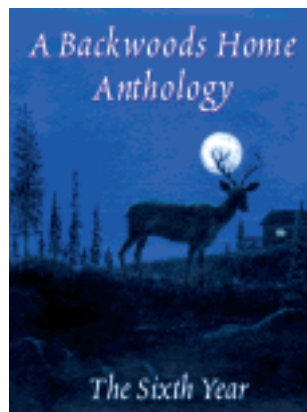
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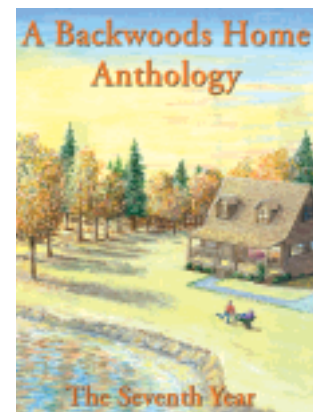
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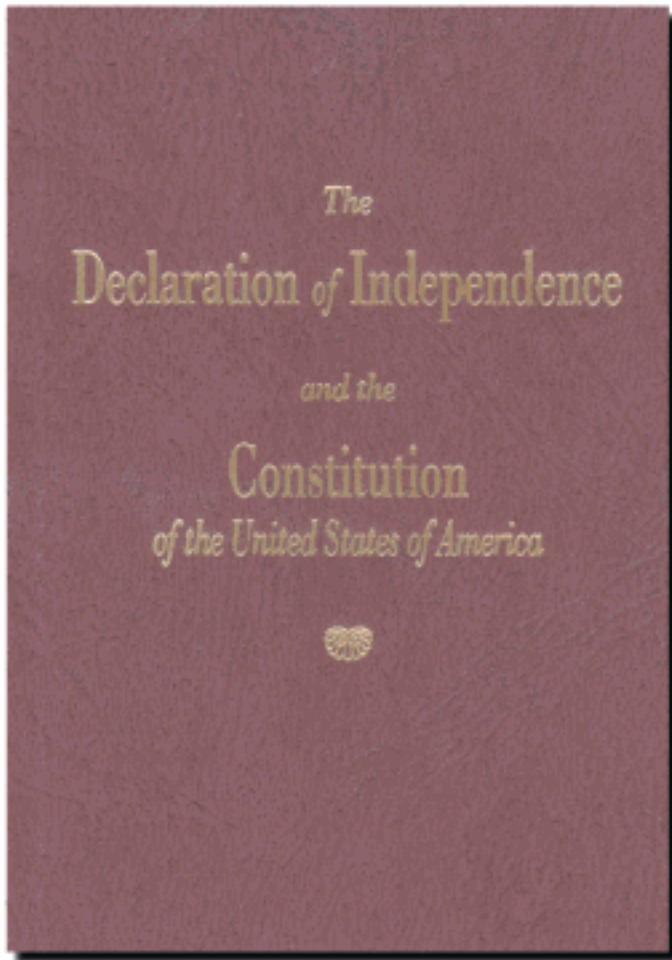
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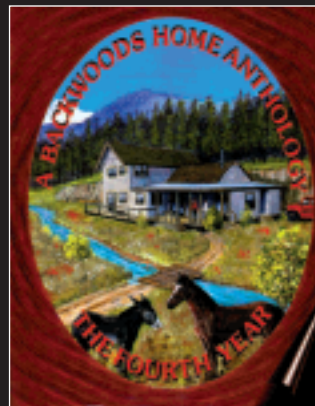
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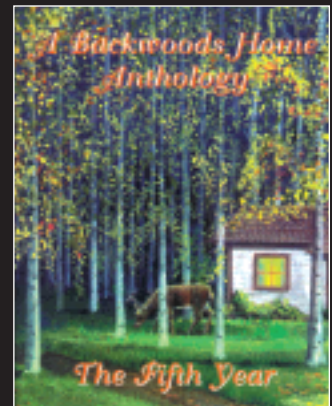
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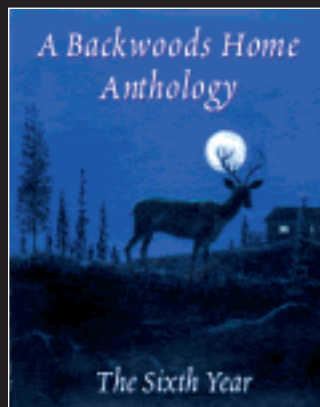
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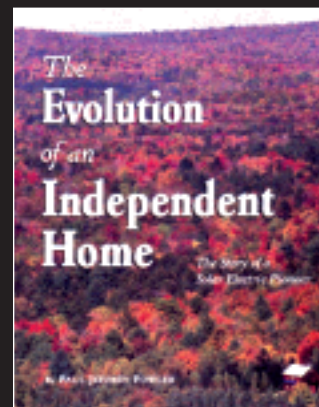
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# End of the World Special

## This issue's doomsayer prediction:

To help highlight phony doomsayer predictions about impending world catastrophe, *BHM* has inaugurated this **End of the World Special** sale, which will change each issue. For this issue, the doomsayers say that on May 5<sup>th</sup> the planets will be aligned, causing earthquakes, reversal of the earth's magnetic field, melting of the polar ice caps, tilting of the earth on its axis, or the altering of the earth's orbit so we'll either be closer to the sun and fry or further away and freeze.

## BHM's explanation:

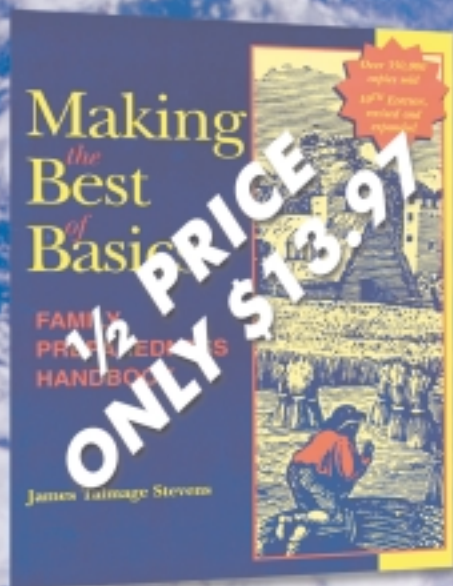
Since at least 300 BC prognosticators have predicted that alignments of the planets will **end the world**. They've been wrong hundreds of times but, optimists that they are, they're sure this time **they'll be right**. What will happen on May 5<sup>th</sup> is that the Earth will be on one side of the Sun and, almost directly opposite, will be Mercury, Venus, Jupiter, and Saturn. Mars will be about 20 degrees from this alignment, and Uranus, Neptune, and Pluto will be at almost right angles to this alignment. But this is **close enough** for the **prophets of doom**. The only thing that will happen as a result of this "sort of" alignment is that tides will be 1/1000<sup>th</sup> of an inch higher than normal. For more information go to this Internet website: <http://www.griffithobs.org/SkyAlignments.html>

## Our special sale offer to celebrate this phony doomsayer prediction:

To celebrate this phony doom and gloom prediction, *BHM* is offering one of our most popular ever books, **Making the Best of Basics** by James Stevens, for half price. The former price was \$21.95 plus \$3 P&H for a total of \$24.95.

Our **End of the World Special** price is \$10.97 plus \$3 P&H for a total of \$13.97 (until they are sold out).

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